HITACHI

SERVICE MANUAL

TK No.6601E

VM-E220A/E520A/E521A
VM-H620A/H720A

TH MECHANISM

Manual related to the VM-E220A/E520A/E521A/H620A/H720A

This model uses a TH MECHANISM.
Refer to the following manuals for the TH MECHANISM.

Name of Manual	Manual No.	Chapter included
VM-E110A/E310A VM-E410A/E510A	6505E	Chapter 2
TH MECHANISM	6406E	——
VM-AC85A	6607E	——
VM-IR20A	6603E	——
VM-E220A Parts List	6601E-1	——

Hi 8

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

8mm VIDEO CAMERA/RECORDER

February 1996 Image & Information Media Systems Division, Tokai

CAUTION (COLOR LCD EVF)

LCD display; the liquid crystal display (LCD) panel is mode by highly precise technology. More than 99.99% of its picture elements (pixels) are effective, but some (less than 0.01%) may appear as colored bright dots. This does not indicate a fault as the LCD panel stretches the limits of current technology.

CAUTION (CRT EVF)

Be carefull of the section painted in white on the electronic viewfinder circuit board as it generates a high voltage.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts have special safety-related characteristics. These are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for a higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual. Electrical components having such features are identified by marking with a ⚠ on the schematics and the parts list in this Service Manual. The use of a substitute replacement component which does not have the same safety characteristics as the HITACHI recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards. Product safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current HITACHI Service Manual. A subscription to, or additional copies for, HITACHI Service Manual may be obtained at a nominal charge from HITACHI SALES CORPORATION.

X-RAY RADIATION

The primary source of X-ray radiation in this viewfinder is the picture tube. The tube used in this viewfinder is specially constructed to limit X-ray radiation emission. For continued X-ray radiation protection, the replacement tude must be the same type as the original, Hitachi approved one.

How to discriminate the "TYPE" identifications in the manual

The parts and circuits are identified by "TYPE" in this manual to discriminate the differences between models. The TYPE numbers are the same as the model numbers. The table below shows how to read the TYPE identifications.

TYPE identification		Model name
TYPE 220	→	VM-E220A
TYPE 520	→	VM-E520A
TYPE 521	→	VM-E521A
TYPE 620	→	VM-H620A
TYPE 720	→	VM-H720A

Differences table of main features

Model name	Nor-8	Hi-8	MONO	STEREO	EIS	FADE	16:9 CINEMA	OPTICAL OUTPUT	WIND CUT DET	W/B EVF	COLOR EVF
VM-E220A	○	–	○	–	×	×	×	×	×	–	○
VM-E520A	○	–	○	–	○	○	○	×	○	–	○
VM-E521A	○	–	○	–	○	○	○	○	○	–	○
VM-H620A	–	○	–	○	○	○	○	×	○	○	–
VM-H720A	–	○	–	○	○	○	○	×	○	–	○

CONTENTS

CHAPTER 1 GENERAL INFORMATION

Specifications

General Specifications

Power requirements	6V DC
Power consumption	VM-H620A: 5.3W (when recording)
	VM-H720A: 5.9W (when recording)
Dimensions	3-11/16" W x 4-3/4" H x 8-5/16" D (94mm x 120mm x 211mm)
Weight	VM-H620A: 1.91lbs(approx. 870g) without battery pack, lens hood, lens cap or cassette
	VM-H720A: 1.89lbs(approx. 860g) without battery pack, lens hood, lens cap or cassette
Operating temperature	32°F ~ 104°F (0°C ~ 40°C)
Storage temperature	-4°F ~ 140°F (-20°C ~ 60°C)

Video Recorder Specifications

Format	8mm
Record/playback	Two video record/playback heads
Video signal	EIA standard NTSC color
Tape speed	14.3mm/sec
Video input	1.0Vp-p, 75 ohm
Video output	1.0Vp-p, 75 ohm
Audio input	-7.8dBs (316mVrms)
Audio output	-7.8dBs (316mVrms)
Fast forward/rewind time	Less than 8 minutes with P6-120 cassette

Camera Specifications

Scanning	525 lines/60 fields/30 frames
Required minimum illumination	2lux
Pickup device	1/4" C.C.D.
Lens diameter	46mm

COMPARISON OF FEATURES

⇦ : SAME AS LEFT

	ITEM	VM-E220A	VM-E520A/E521A	VM-H620A	VM-H720A	VM-E510A	VM-H710A
GENERAL	POWER REQUIREMENTS	6.0V DC	⇦	⇦	⇦	⇦	⇦
	POWER CONSUMPTION	5.3Watts (when recording)	5.4Watts (when recording)	5.3Watts (when recording)	5.9Watts (when recording)	5.3Watts (when recording)	5.9Watts (when recording)
	DIMENSIONS (W×H×D mm)	94×120×211	⇦	⇦	⇦	⇦	⇦
	WEIGHT (gr)	Approx. 850	Approx. 860	Approx. 870	Approx. 860	Approx. 855	Approx. 858
	OPERATION TEMPERATURE/HUMIDITY	32° F ~ 104° F	⇦	⇦	⇦	⇦	⇦
	STORAGE TEMPERATURE	-4° F ~ 140° F	⇦	⇦	⇦	⇦	⇦
VIDEO	FORMAT	8mm	⇦	8mm(Hi-8)	⇦	8mm	8mm(Hi-8)
	RECORD/PLAYBACK SYSTEM	2 HEADS + Flying Erase HEAD	⇦	⇦	⇦	⇦	⇦
	TAPE SPEED	SP : 14.3mm/sec	⇦	⇦	⇦	⇦	⇦
	F.F/REW TIME	Less than 8minutes With P6-120 cassette	⇦	⇦	⇦	⇦	⇦
	HEAD WEEL	40mm	⇦	⇦	⇦	⇦	⇦
	BASIC CHASSIS TYPE	TH MECHANISM	⇦	⇦	⇦	⇦	⇦
	AUTO HEAD CLEANING	NO	⇦	⇦	⇦	⇦	⇦
CAMERA	REQUIRED MINIMUM ILLUMINATION	1 lux	⇦	2 lux	⇦	1 lux	2 lux
	CAMERA DEVICE	1/4" C.C.D	⇦	⇦	⇦	⇦	⇦
	LENS DIAMETER	46mm	⇦	⇦	⇦	⇦	⇦
	ZOOM RATIO/APERTURE	12 : 1 (4mm - 48mm) / f1.6	⇦	⇦	⇦	⇦	⇦
	ZOOM SPEED	1 SPEED	⇦	⇦	⇦	⇦	⇦
OTHER FEATURES	ELECTRONIC VIEWFINDER	LCD (Color)	⇦	CRT (Black & White)	LCD (Color)	⇦	⇦
	ELECTRONIC IMAGE STABILIZER	NO	YES	⇦	⇦	⇦	⇦
	AI AUTO WHITE BALANCE	YES	⇦	⇦	⇦	⇦	⇦
	DIGITAL SIGNAL PROCESSOR	YES	⇦	⇦	⇦	⇦	⇦
	ELECTRICAL ZOOM	NO	MAX: ×36 (24×1.5)	⇦	⇦	⇦	⇦
	INSTANT (INST.) ZOOM	YES (×1.5)	⇦	⇦	⇦	⇦	⇦
	AUTOFOCUS SYSTEM	VIDEO AF	⇦	⇦	⇦	⇦	⇦
	PROGRAM AE (SHUTTER SPEED)	YES (Program AE only)	⇦	⇦	⇦	⇦	⇦
	TITLER	YES (2 LINE)	⇦	⇦	⇦	⇦	⇦
	S-CONNECTOR OUTPUT	NO	⇦	YES	⇦	NO	YES
	CAMERA LIGHT SHOE	YES	⇦	⇦	⇦	⇦	⇦
	MICROPHONE	MONAURAL	⇦	STEREO	⇦	MONAURAL	STEREO
	MIC/EDIT IN JACK	NO/NO	⇦	⇦	⇦	⇦	⇦
	FADE	NO	YES	⇦	⇦	⇦	⇦
	DATE SEARCH	YES	⇦	⇦	⇦	⇦	⇦
	16×9 MODE	NO	YES	⇦	⇦	⇦	⇦
	WIND CUT SWITCH	NO	YES(AUTO)	⇦	⇦	⇦	⇦
	MANUAL/AUTO FOCUS	SELECTIVE	⇦	⇦	⇦	⇦	⇦
	×2 PLAY	YES	⇦	⇦	⇦	NO	⇦
	OPTICAL CONNECTION	NO	YES (For VM-E521A)	NO	⇦	⇦	⇦
ACCESSORIES	AC ADAPTER/CHARGER	VM-AC85A	⇦	⇦	⇦	VM-AC84A	⇦
	AV OPTICAL WIRELESS RECEIVER	NO	VM-IR20A (For VM-E521A)	NO	⇦	⇦	⇦
	BATTERY PACK	VM-BP82G	⇦	⇦	⇦	⇦	⇦
	REMOTE CONTROL	VM-RME55A (OPTION)	VM-RME55A	VM-RME70A	⇦	⇦	⇦
	EASY EDIT REMOTE CONTROL	VM-RM20EDA (OPTION)	⇦	⇦	⇦	NO	⇦

COMPARISON OF MAIN CONTROL ICs

⇦ : SAME AS LEFT

ITEM	VM-E220A/E520A/E521A/H620A/H720A		VM-E110A/E310A/E410A/E510A/H710A	
SENSOR/GYRO				
CCD SENSOR	ICX068/086	(IC1001)	ICX056AK/068AK	(IC1001)
GYRO(VERT.)	ENC-05EA-02	(IC1401)	⇦	
GYRO(HORIZ.)	ENC-05EB-02	(IC1402)	⇦	
GYRO RESET	TC4W66F	(IC1404)	⇦	
GYRO AMP	NJU7032M	(IC1403)	⇦	
SENSOR DRIVE				
CDS/AGC	HA118184F	(IC1101)	⇦	
A/D CONV.	HD49319A	(IC1102)	⇦	
DIGITAL PROCESS	HG51CS035TEA	(IC1103)	HG51CS035TE	(IC1103)
DRIVE PULSE GEN.	μPD16510GR	(IC1104)	⇦	
D μP	HD6433042TBF	(IC1106)	HD6433042T01F	(IC1106)
EEP-ROM	MX25S67MR	(IC1107)	S-2939G1F	(IC1107)
AUTO FOCUS				
IRIS DRIVE	———		NJM3414AM	(IC1201)
F.DET	———		NJM3403A	(IC1202)
F.DET/IRIS DRIVE	UPC5023GS-105	(IC1201)	———	
GAIN SW	———		TC4S66F	(IC1203)
ZOOM MOTOR DRIVE	MPC17AT85VM	(IC1301)	MPC17A85ZVM	(IC1301)
FOCUS MOTOR DRIVE	MPC17AT85VM	(IC1302)	MPC17A85ZVM	(IC1302)
BUF.	———		HD74HCT244T	(IC1303)
SYSTEM CONTROL				
SYSTEM CONTROL μP	CXP87240-107Q	(IC0901)	CXP87240A-102Q	(IC0901)
BACK-UP DET	S84206F	(IC0902)	⇦	
CHARA. GEN.	XLU5949AFS	(IC0904)	⇦	
LEVEL SHIFT	HD74HCT125T	(IC0903)	⇦	
SERVO				
SERVO CONTROL	CXP87240-107Q	(IC0901)	CXP87240A-102Q	(IC0901)
ATF	UPC5023GS-079-E1	(IC0601)	⇦	
CAPST.MOTOR DRIVE	LB1881V	———	⇦	
CYL.MOTOR DRIVE	LB1888V	(IC0631)	LB1885MA	(IC0631)
LOADING MOTOR DRIVE	BA6417F	(IC0671)	BA6477F	(IC0671)
AUDIO				
AUDIO PROCESS	HA118193F/-01	(IC0401)	⇦	
DC-DC CONVERTER				
PWM	TL1464IPT	(IC0551)	⇦	
PRE AMP				
VIDEO HEAD SW	HA118189MPER	(IC0101)	⇦	
PHASE EQ/FM PEAK	UPC5023GS-101-E1	(IC0102)	———	
LUMINANCE/CHROMA				
LUMA/CHROMA PROCESS	HA118192AF/372F	(IC0201)	⇦	
1H DELAY	CXL5516N	(IC0202)	⇦	
CCD 1H DELAY	CXL5507M	(IC0203)	⇦	
VIDEO AMP	UPC5023GS-104-E1	(IC0204)	MM1029AT	(IC0204)
CRT EVF				
VIDEO AMP./V.H DEFLECTION	HA118179F	(IC2001)	⇦	
LCD EVF				
EVF VIDEO PROCESS	IR3Y18A	(IC2101)	IR3Y18	(IC2101)
PULSE GEN.	ETM3030T0A	(IC2202)	⇦	
12V REG	NJM431U	(IC2181)	⇦	
AV TRANSMITTER				
AV MOD.	AN2001SB	(IC0001)	———	

SERVICE MANUAL ABBREVIATION LIST

A	
ACC	Automatic Color Control
ACK	Automatic Color Killer
ADC B-Y	Analog to Digital Converted B-Y Signal
ADC R-Y	Analog to Digital Converted R-Y Signal
ADC Y	Analog to Digital Converted Luminance
ADD	Adder
ADRS	Address
A.DUB	Audio Dubbing
AF	Autofocus
AFC	Automatic Frequency Control
AGC	Automatic Gain Control
AGC KILLER	AGC Killer Voltage
ALC	Automatic Level Control
AIC	Automatic Iris Control
AM	Amplitude Modulation
AMP	Amplifier
APC	Automatic Phase Control
ASBL	Assemble (Phase Matching)
AUD.	Audio
AUX	Auxiliary
A5V	Always 5V B+ Source
B	
B (BLU)	Color Signal BLUE
BATT.	Battery
BF	Burst Flag
BG	Burst Gate or Back Ground
BGP	Burst Gate Pulse
BH	Power Supply for Selecting VHF High Band
BL	Power Supply for Selecting VHF Low Band
BLK	Blanking
BM	Power Supply for Selecting VHF Mid Band
BPF	Bandpass Filter
BS	Power Supply for Selecting VHF Super Band
BU	Power Supply for Selecting UHF Band
BU	Back-up
BUF.	Buffer Amplifier
B-VL	Battery
C	
C	Chroma
C (CHROMA)	Chrominance Signal
CAPST.	Capstan
CAS	Column Address Strobe
CARRI.	Carrier
CATV	Cable TV
C.BLANK	Chroma Blanking
C.BLK	Composite Blanking
CCD	Charge Coupled Device
CG	Character Generator
C.FG/CFG	Capstan Frequency Generater
C.FREE RUN	Chapstan Free Run
CH	Channel
CHD	Camera Horizontal Drive Pulse
CHAR.	Character
CHROMA	Chrominance
C.MEMORY	Counter Memory
CNR	Chroma Noise Reducer
COM.	Common
COM.	Composite
COMPA	Comparator
COMPE	Compensator
COMPO	Composite
COMP-EXP	Compressor-Expander
CONV.	Converter
CONT	Control
CORR.	Correlation
COUNT.	Counter
CP	Clamp Pulse
C.PAUSE	Camera Pause
C/R	Capacitor/Resistor
C.RESET	Counter Reset
C.REVERSE	Count Reverse
CST	Cassette

C	
C.SYNC	Composite Synchronizing Signal
CTL	Control Track Pulse (Control)
CYL	Cylinder
CY (CYAN)	Color Signal CYAN
D	
DA	Double Azimuth
D/A	Digital to Analog Converter
D-D	Direct Drive
DEEMPHA.	Deemphasis
DEF	Deflection
DEMOD.	Demodulator
DEMPX	Demultiplexer
DET	Detector
DIFF. AMP	Differential Amplifier
DISCRI.	Discriminator
DISP.	Display
DL	Delay Line
DN	Down
DO	Dropout
DOC	Dropout Compensator
DRAM	Dynamic Random Access Memory
D.REF 25/30	Delayed Reference 25/30Hz
D.SW 25/30	Delayed Switching 25/30Hz
DSP	Digital Signal Processor
DT/OE	Data Transfer/Output Enable
D/W	Dark/White
DWC	Delayed Write Clock
E	
EA-ROM	Electrically Alterable Read Only Memory
E-E	Electronic-to-Electronic
EMPHA.	Emphasis
EQ	Equalizer
EVF	Electronic Viewfinder
EXT.	External
F	
F.ADV	Frame Advance
F/V	Frequency-to-Voltage Converter
FB	Feed Back
FF	Flip Flop
F.FWD	Fast Forward
FG	Frequency Generator
FM	Frequency Modulation
FREQ.	Frequency
FRAME ADV	Frame Advance
Fsc	Color Sub Carrier Frequency
FWD	Forward
G	
GEN	Generator
GND	Ground
H	
H	Horizontal
HBF	Horizontal Burst Flag
HD	Horizontal Drive
Hi-Fi	High Fidelity
HLT	Halt
HPF	High-pass Filter
HPL	High-pass Limiter
HSS	Horizontal Sync. Separator
I	
IF	Intermediate Frequency
INC	Row Counter Increment
INDI.	Indicator
INT.	Internal
INV.	Inverter
I/O	In/Out (Input/Output)
IR	Infrared Rays
IRIS DET	Iris Detection
IRT	Instant Recording Timer
L	
LCD	Liquid Crystal Display
LIN.	Linear
LM	Loading Motor

L	
LNC	Line Noise Canceller
LOG	Logarithm
LP	Long Play
LP (H)	Long Play Signal (Active High)
LPF	Low-pass Filter
LUMA	Luminance
L/R	Left/Right
M	
MAN	Manual
M.BRAKE	Main Brake
M.CUT	Monitor Cut
MEM.	Memory
MEM ON	Memory ON
MEM SW	Memory Switch
MEM VIDEO	Memorized Video
MIX	Mixer
MMV	Monostable Multivibrator
MOD.	Modulator
MPX	Multiplex
MPX VIDEO	Multiplexed Video
M.STATE	Mechanism State
M.STOP	Memory Stop
MTS	Multi Channel Television Sound
N	
NEG	Negative
NFB	Negative Feed Back
NORM. or NOR.	Normal
NR	Noise Reduction
O	
OB	Optical Black
O/E	Odd/Even Field
OSC	Oscillator
OSD	On-Screen Display
P	
PB/PLAY	Playback
P.CONT	Power Control
PIF	Picture Intermediate Frequency
PG	Pulse Generator
P IN P	Picture in Picture
PIX MOVE	Picture Move
PLL	Phase Locked Loop
POS.	Positive
POWER CONT.	Power Control
PROG.	Program
PROTECT.	Protector
PWM	Pulse Width Modulation
R	
R (RED)	Color Signal RED
RAM	Random Access Memory
RAS	Row Address Strobe
RC	Reading Clock
RCC	Reading Clock Clear
RCR	Row Counter Reset
REC	Record
RECT.	Rectifier
REF	Reference
REF 25/30	Reference 25/30Hz from servo circuit
REG	Regulator
REL	Refresh Control
REW	Rewind
REV	Reverse
RF	Radio Frequency
RM	Reel Motor
ROM	Read Only Memory
R-YL	Color Difference Signal R-YL
S	
SAP	Second Audio Program
SAW	Sawtooth
SC	Serial Control
SC1 (0°)	3.58MHz Subcarrier Signal 1 (0-degree Phase Shifted)

S	
SC2 (90°)	3.58MHz Subcarrier Signal 2 (90-degree Phase Shifted)
SEP.	Separator
SG	Signal Generator
S/H	Sample and Hold
SIF	Sound Intermediate Frequency
SOL	Solenoid
SP	Standard Play
SP/LP	Standard Play/Long Play
S.REEL	Supply Reel Sensor
SRCH	Search
SRV	Servo
STABI.	Stabilizer
S.TRACK	Slow Tracking
STBY	Standby Mode
S-VHS	Super VHS
SW 15Hz	15Hz Head Switching Pulse
SW 25/30Hz	25/30Hz Head Switching Pulse
SYNC	Synchronizing signal
SYS.CON	System Control
T	
T (TELE)	Telephoto Angle
T.BRAKE	Take-up Brake
T/L	Tuner/Line
TP	Test Point
T.REEL	Take-up Reel Sensor
T.RESET	Timer Reset
TRS	Transfer
TμP	Timer Microprocessor
TU-μP	Tuning Microprocessor
U	
U/D	Up/Down
UNI.	Unified
V	
V (VERT)	Vertical
VAR	Variable
V.AGC	AGC Voltage
VCA	Voltage Controlled Amplitier
VCO	Voltage Controlled Oscillator
V.DRV	Vertical Drive Pulse
V.DUB	Video Dubbing
V/F	Voltage to Frequency Converter
VHS	Video Home System
VF	Focus Voltage
VOL.	Volume
V-REF	Voltage Reference
VP	Vertical Pulse
VSS	Vertical Sync. Separator
Vss	Voltage Super Source
VT	Tuning Voltage
VT-U	Tuning Voltage-UHF
VT-V	Tuning Voltage-VHF
VCXO	Voltage Controlled Crystal Oscillator
W	
WC	Write Clock
WCC	Write Clock Clear
WE	Weighting
WHT	Color Signal WHITE
WIDE	Wide Angle
WHD	Wide Horizontal Drive
WHT BAL CONT.	White Balance Control
Y	
Y	Luminance Signal
Y/C	Luminance/Chrominance
YE (YEL)	Color Singal YELLOW
YL	Luminance Signal (Low Component)
ANOTHER	
μP	Microprocessor
5V	ON 5V B+ Source
9V	ON 9V B+ Source

LEADLESS (CHIP) COMPONENT IDENTIFICATION

1. Leadless Transistor

The part name of a leadless transistor is indicated by a code on its surface, using one letter, one letter and one numeral, two letters, two letters and one numeral, two numerals, two numerals and one letter, three letters, or four letters.

Note: There are transistors with the same code but differnt part names, or with the same part name but different codes. Refer to the parts lists to finally identify a transistor.

CODE	PART NAME	CODE	PART NAME
Leadless (Chip) Transistor			
3925	2SC3925	BR	2SC2412K
1CQ	2SB902	BR	2SC4617
1D	2SC3127	BS	2SC2412K
1DS	2SD1328S	C-7	2SA811
1DT	2SD1328	C1G	KSC1623
1R	2SB970TX	CB	2SC3646
2BQ	2SK374PQ	CC	2SA1122C
2BR	2SK374QR	CC	2SC3647T
2Y	2SC3757	CC	2SC3647
2YQ	2SC4691	CD	2SA1122D
3N	2SK620	CE	2SA1122E
4N	XN5601	CK	2SD999
4Q	XN1B301	CP	2SC4097
4R	XN1C301	CQ	2SC2411K
5C	XN4601	CR	2SB710
5C	XP4601	CR	2SC2411
5H	XP4501	CR	2SB1219
5H	XN4501	D16	2SC1622A
5K	XP4401	D17	2SC1622A
5K	XN4401	D18	2SC1622A
5L	XN5501	DB	2SD1766
5N	XN6501	DE	2SC2463
5O	XN6401	DF	2SD1623
5R	XP1501	DF	2SD1898
5R	XN1501	DG	2SD1624
5S	XN1504	DK	2SB798
5V	XN1401	EC	2SA1022
5W	XN2501	F-2	2SC1009F2
5X	XN4504	F-3	2SC1009F3
7R	XN2401	F-4	2SC1009F4
7S	XN1601	FC	2SC2619
AA	2SD1757K	FR	2SA1774
AKQ	2SA1738	FR	2SA1037K
AKQ	2SA1806	FR	2SA1576R
AL	2SA1791	FS	2SA1037K
AM	2SC4656	GC	2SC2734
AO	2SB709AQR	GM	3SD1615
AQ	2SB709AQ	HQ	2SA1036K
AQ	2SB766	IC	2SC3016
AR	2SB1462	IRD	2SA1484
AR	2SB766	IS	2SB792S
AR	2SB709ARS	IT	2SB792T
AR	ASB1218R	L-4	2SC1623L4
AS	2SB766	L-5	2SC1623L5
AS	2SB709AS	L-6	2SC1623L6
B3	2SC1621B3	L-6	2SC2812L6
B4	2SC1621B4	L-7	2SC2812L7
BC	2SB1188	L5	MMBC1623L5
BD	2SB1121	L6	MMBC1623L6
BE	2SB1260	LB	2SC2462B
BF	2SB1123	LC	2SC2462C
BF	2SB1308	LD	2SC2462D
BG	2SB1124	LR	2SC2412KLN
BH	2SB1001	M-5	2SA812
BQ	2SB709A	M-6	2SA1179
BR	2SC4081R	MC	2SA1052MC

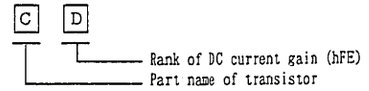
CODE	PART NAME	CODE	PART NAME
Leadless (Chip) Transistor			
MD	2SA1052MC-D	ZS	2SD874S
N3	2SC1653	VR	2SD968A
ND	2SD1306ND	W1	FMW1
NE	2SD1306NE	W10	FMW10
PD	2SA1171D	W2	FMW2
PS	2SD814	W3	FMW3
QB	2SC2620QB	WR	2SD602
QC	2SC2620QC	X1	UMX1
QO	2SC2714	X1	IMX1
R22	2SC4226	X2	IMX2
R22	2SC3356	Y1	FMY1
R32	2SC4227	Y12	2SA1464
R34	2SC3583	Y25	NTM3906
R42	2SC3585	Y3	FMY3
RB	2SC2618RB	YCD	2SK197
RC	2SC2618RC	YI	2SA1666
RK	2SC3357	YQ	2SD601YQ
S1	FMS1	YR	2SD601YR
S2	FMS2	YR	2SD1819R
SC	2SA1121	YR	2SD2216
SO	2SA1162	YS	2SD601YS
SP	2SC3082K	Z1	IMZ1
T1	IMT1	Z2	IMZ2
T1	UMT1	ZO	2SD874T
T2	IMT2	ZQ	2SD601A
UD	2SC2404	ZR	2SD874R
Digital Transistor			
3	DTC143TK	6C	UN9113
4	DTC114TK	6S	XP4113
6	DTC144TK	8B	UN5212
13	DTA143EK	8C	UN9213
14	DTA144EK	8C	UN2213
15	DTA124K	8S	XP4213
15	DTA124EU	9L	XP1213
16	DTA144EU	9L	XN1213
16	XDA144EK	A1	FMA1
16	DTA144EE	A1	UMA1
23	DTC143EK	A2	FMA2
24	DTC114EU	B2	UMB2
24	DTC144EK	B2	IMB2
25	DTC124EU	C2	FMC2
25	DTC124K	C5	FMC5
26	DTC144EE	D2	IMD2
26	DTC144EU	F52	DTB123
26	XDC144EK	G1	FMG1
33	DTA143XK	G2	FMG2
43	DTC143XK	G21	DTD113ZK
52	DTA123YK	G5	FMG5
60	UN511F	HO3	DTC343TK
64	DTC114YK	H2	IMH2
80	UN521F	H2	UNH2
4P	XN1A312T	H27	DTC363EK
6B	UN5112	RO4	KSR1104
6C	UN2113	R31	FP1L2Q
FET			
30	2SK621	WS	2SK322T
1FQ	2SK321FQ	WT	2SK322T
1FR	2SK321FQR	X15	2SK425
1KP	2SK316	X4	2SK94
2BQ	2SK663	XAF	2SK980FG
DY	2SK1579	YC	2SK197YC
JO	2SK208	YD	2SK197YD
K	3SK166	YE	2SK197YE
K4	2SK160K4	ZD	2SK217ZD
K5	2SK160K5	ZE	2SK217ZE
KB	2SK323		

(1) Identification with two letters

Use this code and the following chart for transistor identification.

Example:

Code	Part name
CD	2SA1122D
LD	2SC2462D

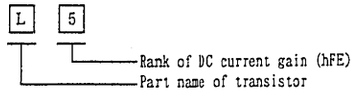


(2) Identification with one letter and one numeral

Use this code and the following chart for transistor identification.

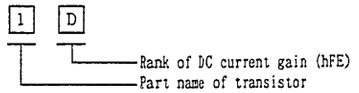
Example:

Code	Part name
L5	2SC1623(5)
L6	2SC1623(6)



Example:

Code	Part name
1D	2SC3127D



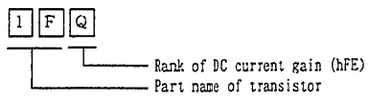
Note: Codes S1, S2, T1, W1, W2, W3, X1, Y1, Y3, Z1 and Z2 encode only the part names.

(3) Identification with one numeral and two letters

Use this code and the following chart for tarnsistor identification.

Example:

Code	Part name
1FQ	2SK321Q

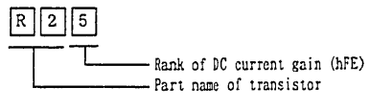


(4) Identification with one letter and two numerals

Use this code and the following chart for transistor identificaion.

Example:

Code	Part name
R25	25C3356

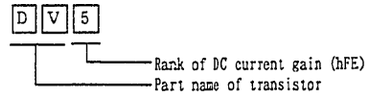


(5) Identification with to letters and one numeral

Use this code and the following chart for transistor identification.

Example:

Code	Part name
DV5	2SD596

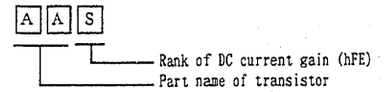


(6) Identification with three letters

Use this code and the following chart for transistor identification.

Example:

Code	Part name
AAS	2SD1757KS



2. Leadless Diode

The part name of a leadless diode is indicated by a code on the surface, using one letter and one numeral, two letters, two letters and one numeral, two numerals and one letter, or three numerals. Use this code and the following table to identify the part name of a diode.

Note: Refer to the parts lists to finally identify a diode.

CODE	PART NAME	CODE	PART NAME
Diode			
0	HVU300A	3D	RB715F
1.0	1SV201	3.0L	MA3030L
2.0	MA3020	3.6L	MA3036L
5.1	MA3051L	3.9L	MA3039L
5.1	MA3051M	4.3H	MA3043H
6.8	MA3068	4.3L	MA3043L
6.8	MA3068M	4.3M	MA3043M
7.5	MA3075L	4.7L	MA3047L
8.2	MA3082M	4.7M	MA3047M
9.1	MA3091	5.1H	MA3051H
20	HZM6	5.1L	MA3051L
24	1SV221	5.1M	MA3051M
27	RD2.7M B	5.6M	MA3056M
30	RD3.0M B	6.2L	MA3062L
51	RD5.1M B2	6.2M	MA3062M
56	RD5.6M B	6.8H	MA3068H
91	RD9.1M B	6.8L	MA3068L
102	RD10M B2	6.8M	MA3068M
122	RD12M B2	6.8M	MA3068
163	RD16M B3	7.5H	MA3075H
182	RD10M B2	7.5L	MA3075L
271	RD2.7M B	8A	UN221D
272	D2.7M B2	8.2H	MA3082H
301	RD3.0M B	8.2M	MA3082M
362	D3.6M B2	9.1M	MA3091M
391	D3.9M B1	9.1M	MA3091
512	RD5.1M B2	10L	MA3100L
561	RD5.6M B	10M	MA3100M
621	RD6.2M B1	11L	MA3110L
681	RD6.8M	12M	MA3120M
683	RD6.8M B3	13H	MA3130H
911	RD9.1M B	18M	MA3180M
2.7H	MA3027H	36M	MA3360
Zener Diode			
1A	MA110	M3A	MA199
A3	1S2835	MC	MA153
A4	HSM2836C	MC	MA143
A5	1S2837	MH	MA141K
A6	HSM2838C	MH	MA151K

CODE	PART NAME	CODE	PART NAME
Zener Diode			
B	SB0505CP	MH	MA152K
B64	SFPB64	MI	MA132K
B74	SFPB74	MN	MA141WA
BE	1SV172	MN	MA152WK
C1	HSM88S	MN	MA151WA
C2	HSM276S	MO	MA132WA
C3	1SS226	MO	MA152WA
C4	HSM88WK	MP	MA133
F7	KV1470	MT	MA151WK
H5	HVM14	MT	MA141WK
J	SB07-03C	MU	MA132WK
K	DA221	MU	MA151WA
M1A	MA159	N	DAN222
M1C	MA158	N	DAN202T
M1M	MA721	NU	MA152WK
M1N	MA713DAT	P	DAP202T
M1P	MA714	S4	D1FS4
M2A	MA122	SA	SB10-05P
M2B	MA123	Z	DA106K

3. Leadless Resistor
The resistor value is indicated on its surface, using three numerals, or one letter and one numeral.

(1) Identification with three numerals
Read this code following the same procedure as when reading the color code on discrete resistors.

Example :

code	value
330	33 x 10^0 = 33 ohms
561	56 x 10^1 = 560 ohms
123	12 x 10^3 = 12K ohms
1R2	1 + 0.2 = 1.2 ohms

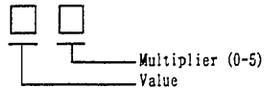
(R : Decimal point)

(2) Identification with one letter and one numeral
Use this code and the following chart for resisitor identification.

Letter	Value	Letter	Value	Letter	Value
A	1	J	2.2	S	4.7
C	1.2	L	2.7	U	5.6
E	1.5	N	3.3	W	6.8
G	1.8	Q	3.9	Y	8.2

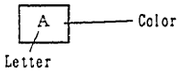
Example :

code	value
A1	1 x 10^1 = 10 ohms
G2	1.8 x 10^2 = 180 ohms
L3	2.7 x 10^3 = 2700 ohms
S4	4.7 x 10^4 = 47K ohms
W5	6.8 x 10^5 = 680K ohms



4. Leadless Capacitors
The capacitor value is indicated on its surface, using body color and one letter, or one letter and one numeral.

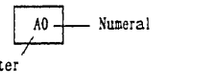
(1) Identification with body color and one letter



Body Color	Letter	Value	Body Color	Letter	Value
Red	A	1(PF)	Blue	A	100(PF)
	C	2		C	120
	E	3		E	150
	G	4		G	180
	J	5		J	220
	L	6		L	270
	N	7		N	330
	Q	8		Q	390
	S	9		S	470
Black	A	10(PF)		U	560
	C	12		W	680
	E	15		Y	820
	G	18	White	A	0.001(μF)
	J	22		E	0.0015
	L	27		J	0.0022
	N	33		L	0.0027
	Q	39		N	0.0033
	S	47		S	0.0047
	U	56		W	0.0068
	W	68	Green	A	0.01(μF)
	Y	82		E	0.015
				J	0.022
				N	0.033
				S	0.047
				U	0.056
				W	0.068
				Y	0.082
			Yellow	A	0.1(μF)

Example : Color — Letter — Value
Red — A — 1PF
Black — A — 10PF

(2) Identification with one letter and one numeral



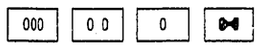
Letter/Numeral	Value	Letter/Numeral	Value
A0	1(PF)	A2	100(PF)
H0	2	C2	120
M0	3	E2	150
d0	4	G2	180
f0	5	J2	220
m0	6	L2	270
n0	7	N2	330
t0	8	Q2	390
y0	9	S2	470
A1	10(PF)	U2	560
C1	12	W2	680
E1	15	Y2	820
G1	18	A3	0.001(μF)
J1	22	E3	0.0015
L1	27	J3	0.0022
N1	33	N3	0.0033
Q1	39	S3	0.0047
S1	47	W3	0.0068
U1	56	A4	0.01(μF)
W1	68	E4	0.015
Y1	82	J4	0.022
		N4	0.033
		S4	0.047
		U4	0.056
		W4	0.068
		A5	0.1

Example :

Letter/Numeral	Value
A0	1PF
A1	10PF

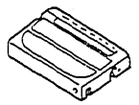
5. Leadless Jumper
The leadless jumper is indicated as shown below.

(1) (2) (3) (4)

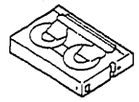


JIGS AND TAPES FOR ADJUSTMENT

1. ALIGNMENT TAPE
COLOR BAR/400Hz
(20HSC-2) No.7099231



2. CASSETTE TORQUE METER
SRK-8T-132 No.7099235
SRK-8T-112 No.7099385

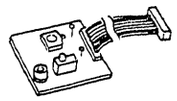


3. MASTER PLANE
No.7099237

4. REEL DISK HEIGHT JIG
No.7099238

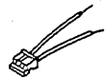
5. SPECIAL DRIVER
No.7099239

6. ATF-R JIG (SW3:ON)
No.7099461

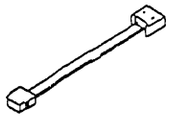


7. C12 LIGHT BALANCE
FILTER 46mmφ
No.7099369

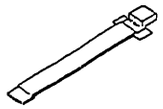
8. 3-PIN EXTENSION
CABLE No. 7069113



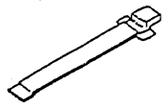
9. 2-PIN EXTENSION
CABLE No.7069038



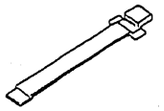
10. 8-PIN EXTENSION
CABLE No.7069115



11. 10-PIN EXTENSION
CABLE No.7069039

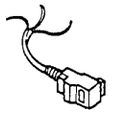


12. 9-PIN EXTENSION
CABLE No.7069040

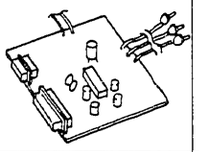


13. 20-PIN EXTENSION
CABLE No.7069112

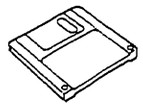
14. DSP AV OUTPUT JIG
No.7099456



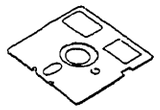
15. DSP-R JIG
No.7099448



※16. ADJUSTMENT FLOPPY
DISK (3.5 inch)
No.7069142

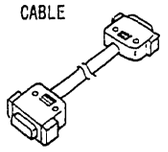


※17. ADJUSTMENT FLOPPY
DISK (5 inch)
No.7069143

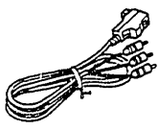


★18. PERSONAL COMPUTER

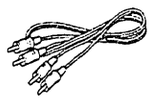
★19. PERSONAL COMPUTER
9-PIN or 25-PIN
CABLE



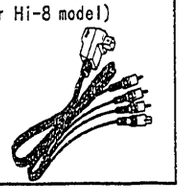
◆20. AV INPUT CABLE



◎21. AV OUTPUT CABLE
(For normal 8 model)



(for Hi-8 model)



MARKS
※ : New jigs and tools
★ : Goods on the Market
◆ : Optional Accessory
◎ : Accessory

NOTE
1: Always set SW3 on the ATF-R jig to ON.
2: The ATF jig (No.7099386) can also be used in place of ATF-R jig to adjust this model.
3: The DSP jig (No.7099442) can also be used in place of DSP-R jig to adjust this model.
4: Either the monaural or stereo AV input/output cable can be used.

HOW TO USE THE EXTENSION CABLE

No.	NAME OF EXTENSION CABLE	PARTS No.	HOW TO USE (PURPOSE OF USE)
8	3-PIN EXTENSION CABLE	7069113	• For power supply. (Blue: Negative, Yellow:Positive) • Power supply cable after the case removed.
9	2-PIN EXTENSION CABLE	7069038	• Installed between the VCA circuit board and loading motor.
10	8-PIN EXTENSION CABLE	7069115	• Installed between the VCA and DCS circuit boards. ——NOTE—— Do not use this extension cable for "(1) Power Shutoff Level Adjustment" in the VCR adjustment section.
11	10-PIN EXTENSION CABLE	7069039	• Installed between the VCA circuit board and cylinder. ——NOTE—— Using this extension cable causes noise to occur in the playback picture. This cable is used to check voltage and waveforms. Check the picture quality in the regular connection state.
12	9-PIN EXTENSION CABLE	7069040	• Installed between the VCA circuit board and capstan motor.
13	20-PIN EXTENSION CABLE	7069112	• Installed between the SPE and VCA circuit boards.

ADVICE: When connecting an extension cable, it is convenient that you use a remote control to operate the camera/recoder.

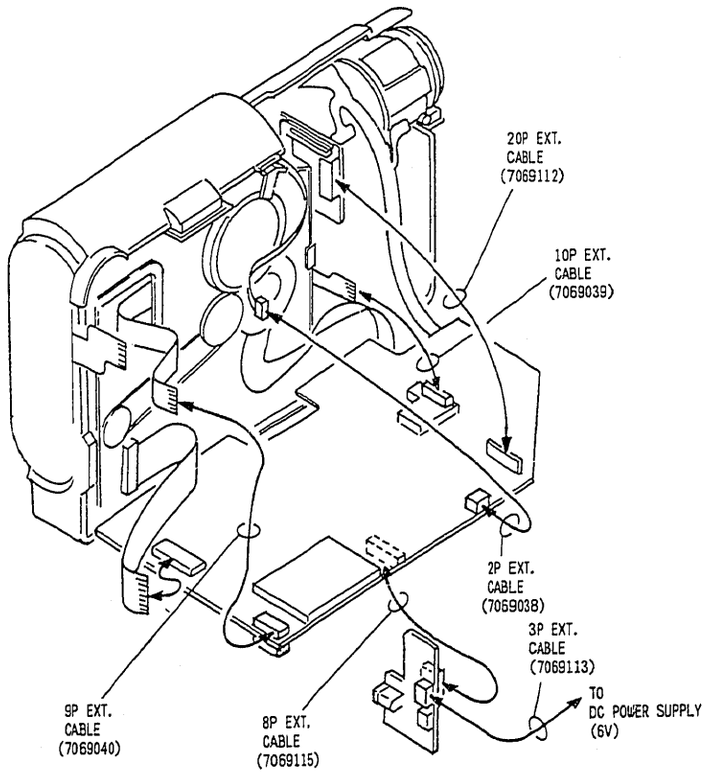


Fig. 1-1 Extension Cable Connection Diagram

MAINTENANCE/INSPECTION PROCEDURE

1. Required Maintenance

The recording density of a VCR is much higher than that of an audio tape recorder. VCR components must be very precise to ensure compatible with other VCRs. If any of these components are worn or dirty, the symptoms will be the same as if the part is defective.
To ensure a good picture, periodic inspection and maintenance, including replacement of worn-out parts and lubrications, is necessary.

2. Scheduled Maintenance

Schedules for maintenance and inspection are not fixed because they vary greatly according to the way in which the customer uses the VCR, and the environment in which the VCR is used. But, in general home use, a good picture will be maintained if the inspection and maintenance is done every 500 hours. Table 1 shows the relation between time used per day and inspection period.

Table 1

Average hours used per day	When inspection is necessary		
	About 6 months ↓	About 9 months ↓	About 18 months ↓
One hour			
Two hours			
Three hours			

3. Check before starting Repairs

The faults occurring in the playback picture as shown in Table 2 can be remedied by cleaning and oiling. Check the need for lubrication and the conditions of cleanliness in the unit.
Check with the customer to find out how often the unit is used. If from that you determine that the unit is ready for inspection and maintenance, check the parts shown in Table 2.

Table 2

Phenomenon	Inspection Location
Poor S/N, no color	Dirt on video head or worn video head
Tape does not run or tape is slack	Dirt on pressure roller, cylinder or in tape transport system
Vertical jitter	Dirt on video head or in tape transport system
Low volume or sound distorted	Dirt on video head or worn video head

4. Tools Needed for Inspection and Maintenance

(1) Head cleaning kit
(2) VCR oil and grease (Table 3)
(3) Alcohol
(4) Gauze
(5) Cleaning tape [Maxell 8M-CL MCA (dry type)]

Table 3 Locations for Greasing and Oiling

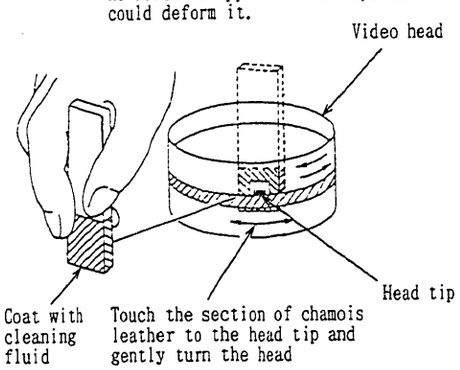
Name	Oil or Greasing Location
Sonic Slidas Oil (#1600)	Oil low-speed rotating sections
Froil (G31-SA)	Lubricate metal or molded section under light load
Molicoat (PG-641)	Lubricate metal or molded sections under light load
Lock paint	Fix adjustment screws and nuts.

5. Maintenance Procedures

5-1 Cleaning

(1) Cleaning video head
First use a cleaning tape. Be sure to use the specified cleaning tape and read its instruction sheet carefully before using it. If dirt on head is too stubborn to remove by tape, use the cleaning kit. Moisten the cleaning stick with cleaning fluid at the point indicated.
Touch the stick to the head tip and gently turn the head (rotating cylinder) to the right and left. (Do not move the stick vertically and make sure that only the chamois leather on the stick comes into contact with the head. Otherwise, the head may be damaged.) Thoroughly dry the head. Then test run a tape.
If cleaning fluid remains on the video head, the tape may be damaged when it comes into contact with the head surface.

(2) Cleaning the tape transport system and drive system, etc.
Wipe with gauze moistened with alcohol.
Notes: 1) The tape transport system is the system which comes into contact with the running tape. The drive system consists of those parts which run the tape.
2) Make sure that during cleaning you do not touch the tape transport system with the tip of a screwdriver and that no force is applied to the system that could deform it.



5-2 Lubrication

(1) Guide lines for lubricating with oil
Use the oiler to apply one or two drop of Sonic Slidas oil. Make sure not to use too mach oil because it may spill over or leak out coming into contact with rotating parts and causing slippage or other problems. If too much oil is applied, wipe clean with alchohol.

(2) Periodic oil lubrication
Lubricate the specified locations only when replacing components. Refer to the exploded views for the lubricating locations.

5-3 Greasing

(1) Greasing guidelines
Apply grease Froil or Molicoat, with a stick or brush. DO not use excess grease. It may come into contact with the tape transport or drive system. Wipe any excess and clean with gauze moistend with alcohol.

(2) Periodic greasing
Grease the specified locations only when replacing components. Refer to the exploded views for the greasing locations.

Table 4 Parts to be Maintained/Inspected and Maintenance/Inspection Schedules

Caution: The following table does not apply to all units. The maintenance/inspection schedules depend on how the unit is used and the environment in which it is used.

Component \ Hours	500	1000	1500	2000	2500	3000
Video heads (cylinder assembly)	C	C/R	C	C/R	C	C/R
Supply guide roller	C	C	C	C	C	C
Supply guide pole	C	C	C	C	C	C
Take-up guide roller	C	C	C	C	C	C
Pull-out pole	C	C	C	C	C	C
Tension pole	C	C	C	C	C	C
Tension band		R		R		R
Supply reel disk	C	C	C	C/R	C	C
Take-up reel disk	C	C	C	C/R	C	C
Pressure roller	C	C	C	C/R	C	C
Impedance roller	C	C	C	C	C	C
Capstan belt				R		
Reel drive idler				R		
Capstan shaft (capstan motor)	C	C	C	C/R	C	C
Loading motor				R		

C : Cleaning
R : Parts replacing

CHAPTER 2 DISASSEMBLY

1. CHANGE OF "4. COMPONENTS REMOVAL" [For Type521]

This describes only the differences from the "VM-E110A/E310A/E410A/E510A" manual issued previously.

4. Mic Unit, Left Case, Camera Block, Main Block

CHANGED

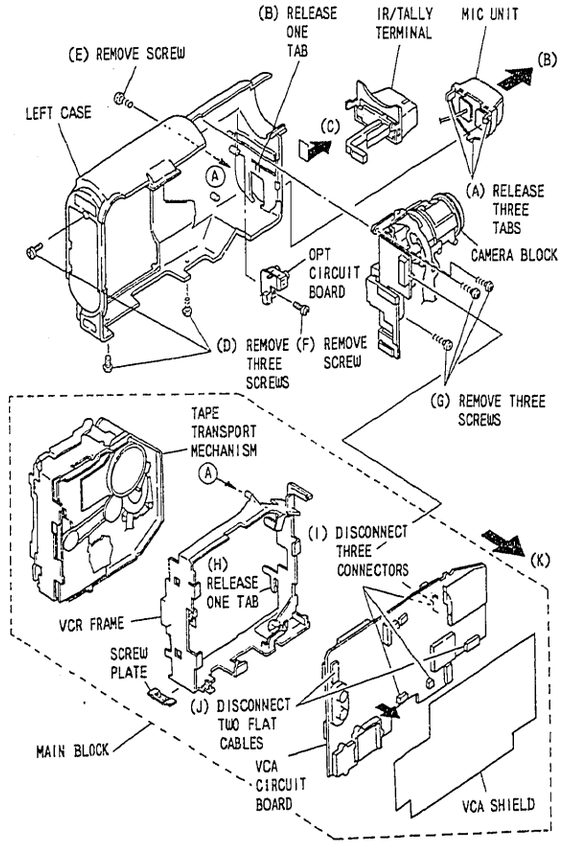


Fig. 4-4

2. CHANGE OF "TH MECHANISM"

This describes only the differences from the "TH MECHANISM" manual issued previously.

1. DISASSEMBLY

2-1. Cassette holder (Fig.2-1)

1) Move the eject lever in the direction of arrow (A) and set the unit to the eject state.

Caution when reinstalling
- Reinstall the cassette holder so that section (B) of the eject lock slider is inserted into section (C) of the eject lock arm.

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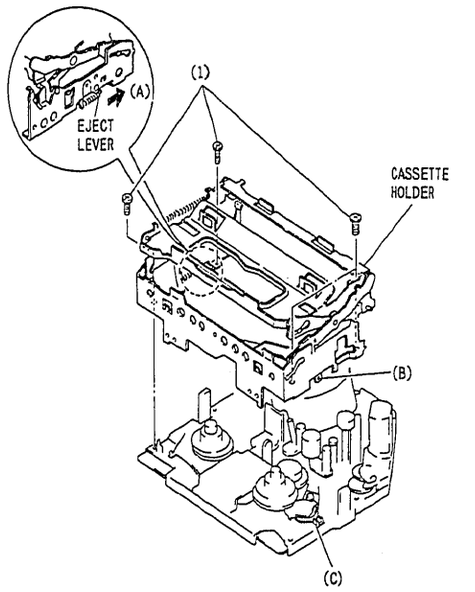
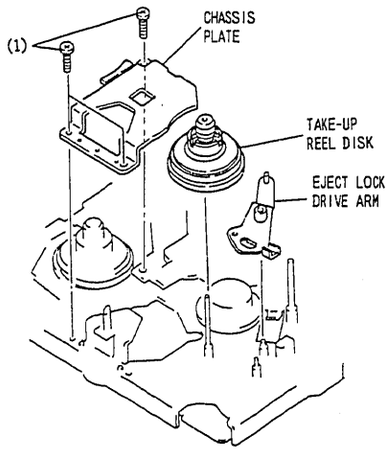


CHANGED

2-12. Chassis plate, Take-up reel disk (Fig.2-13)

1) Remove screw (1) holding the chassis plate.
2) Remove the chassis plate from the chssis.
3) Pull out the take-up reel disk from the take-up reel disk shaft.

Caution when reinstalling
- When reinstalling the chassis plate, make sure the flange covers over the edges of the tension band.



2-13. Eject lock drive arm (Fig.2-13)

1) Remove the eject lock drive arm from the chassis plate.

Caution when reinstalling
- Reinstall the eject lock drive arm so that pin (B) of the eject lock arm is inserted into hole (A) in the eject lock drive arm.

DELETED

3-2. Loading Gears and Loading Ring (Figs. 3-2, 3-3)

Caution
- Be careful that the phase of the mechanism state switch which was matched in item 3-1 does not drift.

●Procedure of phase matching in assembly

1) Align the markings of the loading ring and gears as shown in Fig. 3-2.

Caution: When reinstalling the pressure roller cam gear, set the eject lock drive arm to the position shown in Fig. 3-3 and check that pin (j) is inserted into groove (J) in the back of the pressure roller cam gear.

Advice: If it is difficult to see marking (D) on the lower loading ring, match the phase by the following procedure.

① Set the upper and lower loading rings to the state shown in Fig. 3-2. (Watch the guide roller fixing section.)
② Move the upper and lower loading rings so that holes (H) overlap each other.
③ If holes (H) overlap each other, the phase of the loading ring is correct.
④ If holes (K) overlap each other, the phase of the loading relay gear (4) is correct.

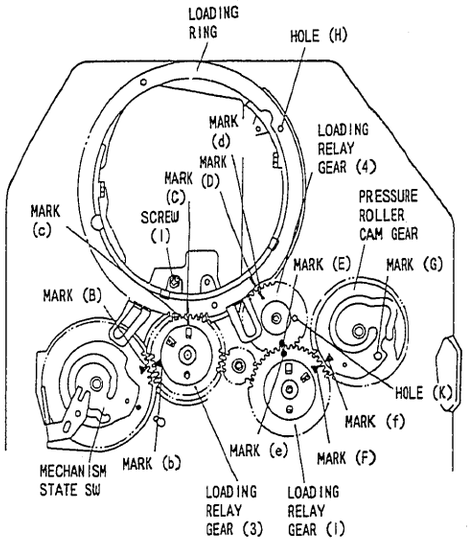


Fig. 3-2

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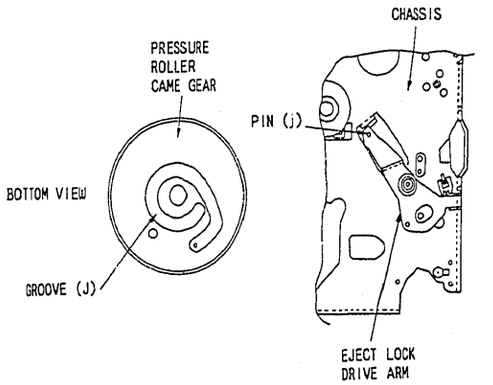

Fig. 3-3

2. MECHANISM ADJUSTMENT

3-3. Supply/Take-up Guide Roller Height Adjustment (Figs. 3-4, 3-5)

Caution

·Be sure to check this item after reinstalling the supply guide roller and take-up guide roller. Basically, the height of the supply/take-up guide rollers should not be adjusted. Adjust these heights only if they are abnormal.

Test equipment/jigs	Test equipment/jigs connection points	State of VCR	Adjustment point
· Alignment tape · Oscilloscope · ATF-R jig · Special driver	· Test Plug on Main board · TP1(SW25/30) on ATF-R jig · TP2(GND) on ATF-R jig · TP3(FM OUT) on ATF-R jig	· Connect the ATF-R jig to test plug. · ATF-R jig (SW1: OFF, SW3: ON, RT1: mechanical center)	· Top of guide rollers

●Adjustment procedure

Caution: Before performing this adjustment, refer to Fig. 6-1 and modify the ATF-R jig. Connect the ATF-R jig before suppling power.

1) After inserting the alignment tape which was completely rewound, set the camera/recorder to the test mode by the following procedure.
[Procedure to set to the test mode]
①Remove the power supply from the camera/recorder.
②Set the CAMERA/OFF/VCR switch to VCR position.
③Check that the ATF-R jig (SW1:OFF,SW3:ON) is connected and then press the playback button and hold it, then supply the power again to the camera/recorder.
<Note>
1. If the mechanical block operates (enters the playback mode) simultaneously when the power is supplied again, the camera/recorder dose not enter the test mode.
Restart from step (1) again.
2. The test mode is released when the power supply is removed from the camera/recorder.
2) Connect an oscilloscope to TP3 on the ATF-R jig and press the PLAY button.
3) Synchronize the oscilloscope with TP1 (SW25/30) on the ATF-R jig.
4) Set the osilloscope to (+) slope.

◆Supply Guide Roller (Fig. 3-4)

5) Press SW2 on the ATF-R jig and hold it, then perform the following steps.
6) Adjust the height of the supply guide roller so the waveform is flat.
7) Adjust the voltage level control of the oscilloscope so that portion (A) of the waveform is set to 4 graduations.
8) Set SW1 on the ATF-R jig to ON.
9) Turn RT1 on the ATF-R jig counterclockwise so the voltage at point (C) on the ATF-R jig is 1.8 ± 0.1V. Then check that point (B) of the waveform is set to 3 graduation.
10) Adjust the height of the supply guide roller so minimum amplitude of the waveform is set to NTSC:2.3±0.3/PAL:2.5±0.3 graduations.

◆Take-up Guide Roller (Fig. 3-5)

11) Set the oscilloscope to (-) slope.
12) Adjust the voltage level control of the oscilloscope so that portion (B) of the waveform is set to 4 graduations.
13) Turn RT1 on the ATF-R jig counterclockwise so the voltage at point (C) on the ATF-R jig is 1.8 ± 0.1V. Then check that point (B) of the waveform is set to 3 graduation.
14) Adjust the height of the take-up guide roller so the minimum amplitude of the waveform is set to NTSC:2.5±0.3/PAL:2.3±0.3 graduations.

Caution: After adjustment is completed, be sure to reverse the modification to ATF-R jig.

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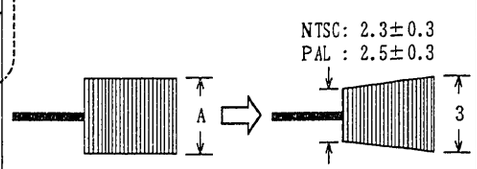

Fig. 3-4

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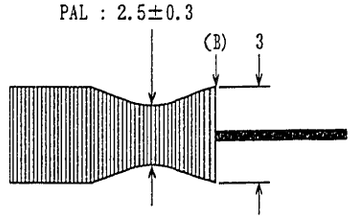

Fig. 3-5

4. ADJUSTMENT AFTER REPLACING THE CYLINDER (Figs. 4-1, 4-2)

When the cylinder is replaced, the height relative to the guide roller drifts, therefore the tape transport system and servo circuit should be adjusted. Check and adjust in the following order.

Test equipment/jigs	Test equipment/jigs connection points	State of VCR	Adjustment point
· Alignment tape · Oscilloscope · ATF-R jig · Special driver	· Test Plug on Main board · TP1(SW25/30) on ATF-R jig · TP2(GND) on ATF-R jig · TP3(FM OUT) on ATF-R jig	· Connect the ATF-R jig to test plug. · ATF-R jig (SW1: OFF, SW3: ON, RT1: mechanical center)	· Top of guide rollers

●Adjustment procedure

Caution: Before performing this adjustment, refer to Fig. 6-1 and modify the ATF-R jig.

1) After inserting the alignment tape which was completely rewound, set the camera/recorder to the test mode by the following procedure.
[Procedure to set to the test mode]
①Remove the power supply from the camera/recorder.
②Set the CAMERA/OFF/VCR switch to VCR position.
③Check that the ATF-R jig (SW1:OFF,SW3:ON) is connected and then press the playback button and hold it, then supply the power again to the camera/recorder.
<Note>
1. If the mechanical block operates (enters the playback mode) simultaneously when the power is supplied again, the camera/recorder dose not enter the test mode.
Restart from step (1) again.
2. The test mode is released when the power supply is removed from the camera/recorder.
2) Connect an oscilloscope to TP3 on the ATF-R jig and press the PLAY button.
3) Syncronise the oscilloscope with TP1(SW25/30) on the ATF-R jig.
4) Set the oscilloscope to (+) slope.
5) Press SW2 on the ATF-R jig and hold it, then perform the following steps.
6) Adjust the voltage level control of the oscilloscope so that portion (A) of the waveform is set to 4 graduations.
7) Set SW1 on the ATF-R jig to ON.
8) Turn RT1 on the ATF-R jig counterclockwise so that portion (A) of the waveform is set to 3 graduations.
9) Adjust the height of the supply guide roller so the minimum amplitude of the waveform is set to NTSC:2.3±0.3/PAL:2.5±0.3 graduations. (See Fig. 4-1)
10) If this cannot be confirmed, adjust the height of the supply guide roller, referring to "3-3. Supply/Take-up Guide Roller Height Adjustment".
11) Set the osilloscope to (-) slope.
12) Turn RT1 on the ATF-R jig counterclockwise so the voltage at point (C) on the ATF-R jig is 1.8±0.1V. Then check that point (B) of the waveform is set to 3 graduation.
13) Check that the minimum amplitude of the waveform is set to NTSC:2.3±0.3/PAL:2.5±0.3 graduations. (See Fig.4-2)
If this cannot be confirmed, adjust the height of the take-up guide roller, referring to "3-3. Supply/Take-up Guide Roller Height Adjustment".
14) Perform the following electrical adjustments.
·Head switching point adjustment
·Record luminance/chroma level adjustment

Caution: After adjustment is complete, be sure to reverse the modification to ATF-R jig.

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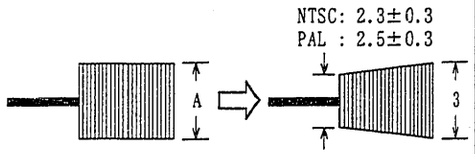

Fig. 4-1

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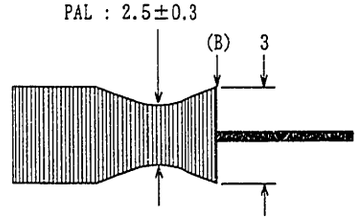


Fig. 4-2

5. CHECKING THE TORQUE

There are two types of cassette torque meter.
Choose the applicable one for the measurement to be performed.

Item	VCR mode	Measured reel disk	Torque value	Torque cassette used
Take-up torque	Playback	Take-up	7-13 g-cm	SRK-8T-212 SRK-8T-232
Rewind torque	Reverse search	Supply	25-37 g-cm	SRK-8T-232
Take-up brake torque	Reverse search to stop	Take-up	10 g-cm ro more	SRK-8T-212 SRK-8T-232
Slack removal torque	Unloading	Supply	25-37 g-cm	SRK-8T-232

6. MODIFICATION TO ATF-R JIG (Fig. 6-1)

Caution: The ATF-R jig must be modified for the following adjustments.
After completing these, be sure to reverse the modification.
- 3-3. Supply/Take-up Guide Roller Height Adjustment
- 4. ADJUSTMENT AFTER REPLACING THE CYLINDER

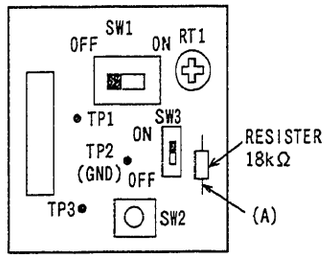
CHANGED

●Procedure

1) Short terminal (A) of the resister on the ATF-R jig and pin 1 (5V) of the connector.

Note: This modification makes SW2 on the ATF-R jig a PCM area observation switch.

Caution: Use a shorting clip, etc. to short the parts; this can be removed easily after adjustment is completed.
A modification is also necessary in the same way when the ATF jig is used.



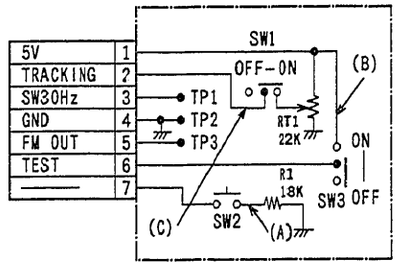


Fig. 6-1

4. PHOTOS OF MECHANISM

·Refer to these when reinstalling and perform phase matching in assembly.

4-1. Top View of Mechanism

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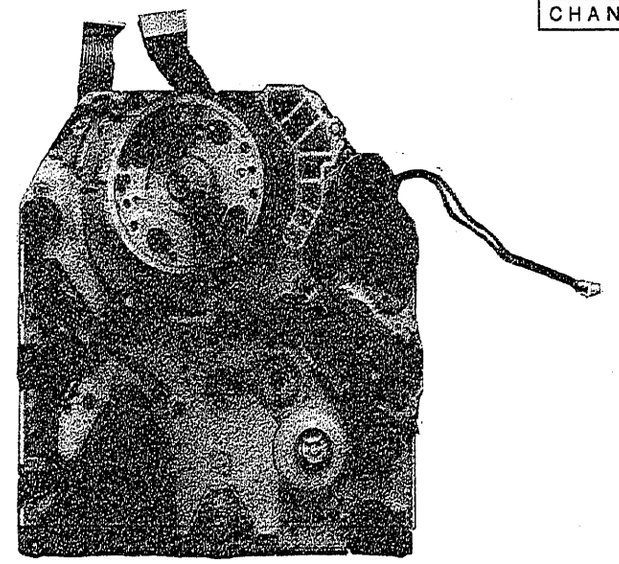


Fig. 4-1

4-2. Bottom View of Mechanism

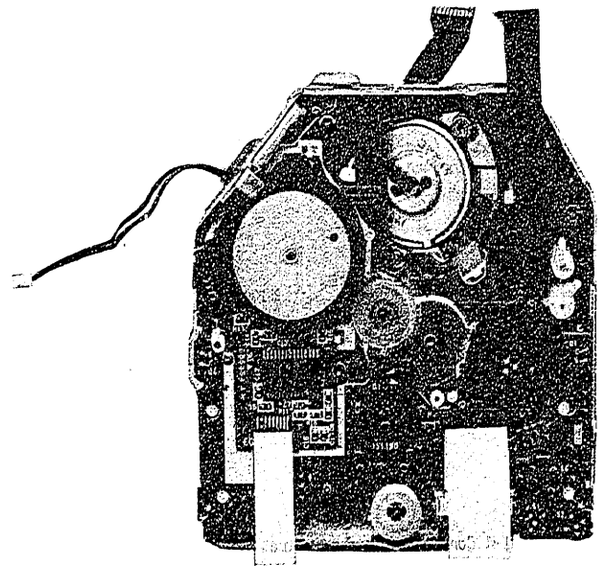


Fig. 4-2

CHAPTER 3 ELECTRIC CIRCUIT ADJUSTMENT

ELECTRICAL ADJUSTMENT

Abbreviation

MAP ···· Digital adjustment program for the camera
DSP ···· Digital signal processor

1. CONNECTION FOR ADJUSTMENT

- Most adjustment items can be done without dismantling the camera/recoder.
- Connect the EVF to display the operation mode on the monitor screen.

◆ To perform the following adjustments, set the camera/recorder to the state as shown in CHAPTER 1 Extension Cable Connection Diagram, referring to "CHAPTER 2 DISASSEMBLY".

- VCR Section Adjustments
- Electronic Viewfinder Adjustments

(The EVF block should further be taken apart.)

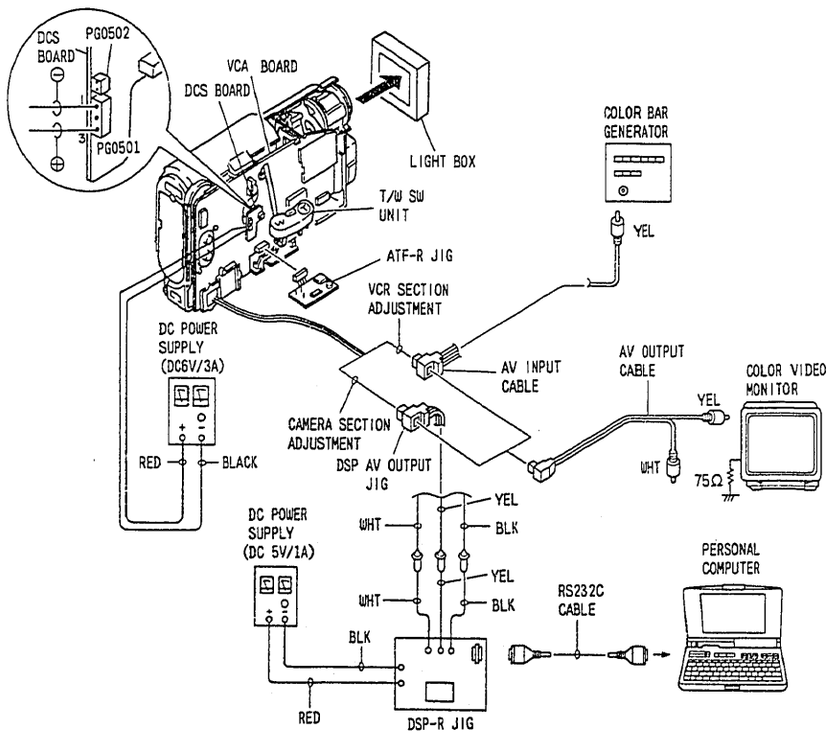


Fig. 1-1 Connection for adjustment

2. CAMERA SECTION ADJUSTMENT

1. CIRCUIT BOARD LOCATIONS

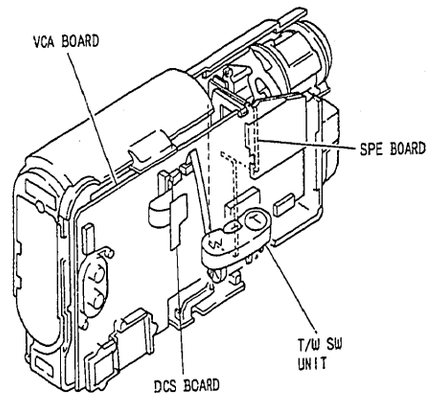


Fig. 2-1

2. TEST EQUIPMENT AND CHARTS NECESSARY FOR ADJUSTMENT

1) Test Equipment
   - Oscilloscope (dual trace) [Vectorscope]
   - Digital Voltmeter (DVM)
   - Frequency Counter
   - Color Video Monitor
2) Charts, etc.
   - Adjustment Floppy Disk
   - Personal Computer
   - Personal Computer 9-pin or 25-pin (RS232C) Cable
   - DSP-R Jig
   - DSP AV Output Cable
   - Gray Scale Chart
   - Color Bar Chart
   - Resolution Chart
   - Backfocus Adjustment Chart
   - Light Box (3100°K)
   - Light Balancing Filter C12
   - DC Power Supply (DC6V/3A)
   - DC Power Supply (DC5V/1A)

3. ADJUSTMENT CONDITION

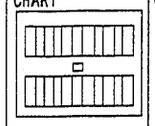
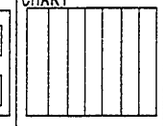
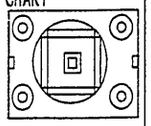
1) Check that the VCR section has been adjusted correctly before adjusting the camera section.
2) Use a light box with minimum flickering. Control the colour temperature of the light box strictly.
3) Connect this unit, a power supply and a color video monitor as shown in Fig. 1-1.
4) When using the video out (AV OUT) to perform adjustment, be sure to terminate the AV OUT jack with 75 ohms.
5) Place the chart (light box) approx. 30cm away from the camera (lens surface) when otherwise not specified.
6) Point the camera at the chart to full the video period when otherwise not specified.
7) Use the 10:1 probe of the oscilloscope when otherwise not specified.
8) When "Trigger the oscilloscope internally" is specified, set the time base of the oscilloscope to 10μs/div.

4. PRESET POSITIONS OF SWITCHES AND CONTROLS DURING ADJUSTMENT

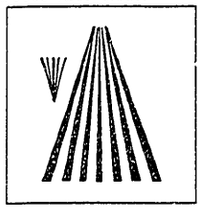
- CAMERA/OFF/VCR switch ..... "CAMERA" position
- INST. ZOOM ..... Not Display mode
- DATE ..... Not Display mode
- DISPLAY ..... Not Display mode
- TITLE ..... Not Display mode
- FOCUS ..... Auto mode
- EIS ..... OFF mode
- 16×9 ..... OFF mode
- FADE ..... Normal mode

5. LIST OF CHARTS FOR CAMERA ADJUSTMENT

Table 2-1

GREY SCALE CHART	COLOR BAR CHART	RESOLUTION CHART
		

BACKFOCUS ADJ. CHART



6. CHECK AFTER REPLACING MAJOR COMPONENTS IN THE CAMERA SECTION

After replacing major components, perform adjustments, referring to the table below.
The following table shows the minimum adjustments required after major components are replaced.
The table below may not apply when several components are replaced, depending on the symptom of the defect.

Caution : When EEP ROM or the VCA circuit board is replaced, initialize the EEP ROM, referring to "7-3 Initial Setting by Model", then perform all the camera section and system control/ servo circuits adjustments.

ITEM No.	NAME OF ADJUSTMENT	NAME OF MAJOR COMPONENTS										
		SPE BOARD	VCA BOARD	IC1001	IC1101	IC1106	IC1107	IC1201	IC1103	IC1401 IC1402	IC1403	
—	Initial Setting by Model		●				●					
ELECTRIC VOLUME ADJUSTMENT PROCEDURE												
(1)	CDS Offset Adjustment		●		●		●					
(2)	CDS Sampling pulse		●				●		●			
DIGITAL ADJUSTMENT PROCEDURE												
(1)	Auto Iris Control Adjustment	●	●	●		●	●	●				
(2)	Knee Adjustment		●		●		●					
(3)	Matrix Adjustment	●	●	●			●					
(4)	White balance Adjustment	●	●	●			●					
(5)	Chroma gain Adjustment	●	●	●			●					
AUTO FOCUS ADJUSTMENT PROCEDURE												
(1)	Zoom Trace Adjustment	●	●	●			●					
(2)	AF Noise Level Adjustment	●	●	●			●					
STABILIZER ADJUSTMENT PROCEDURE												
(1)	Stabilizer Adjustment	●	●				●			●	●	
SPOT NOISE ADJUSTMENT PROCEDURE												
(1)	Spot Noise Adjustment		●	●			●					

7. CAMERA SECTION ADJUSTMENT PROCEDURE

— NOTE —

1: To complete adjustment, press the ESC (escape) key twice to restore the MS-DOS screen and then turn off the camera/ recorder and jigs.
2: The following describes an example of the instructions of the personal computer and the menu display; they are different depending on the personal computer manufacturer and model. Refer to the instruction manual of personal computer.
3: When the error message appears during adjustment, refer to "4. Error Messages". If a key is pressed after an error message appears, the ADJUSTMENT MENU is restored.

```
F>
```

Fig. 2-2

↓

LOAD THE CAMERA ADJ. FLOPPY DISK INTO DISK DRIVE B

↓

Press B : ENTER

↓

```
F>B:
B>
```

Fig. 2-3

↓

Press M A P _ I B M (SPACE) 1 ENTER

↓

(A)

7-1. Connections for Adjustment

Connect the camera/recorder, DSP-R jig, personal computer, power supply, etc. as shown in Fig. 1-1. Check that the camera/recorder is turned on.

7-2. How to start the MAP

— PROCEDURE —

1) Turn the personal computer on and start the MS-DOS system. (Fig. 2-2)

2) Load the adjustment floppy disk into disk
(-drive B and press B : then ENTER .
or
-drive A and press A : then ENTER .) (Fig. 2-3)

3) Press M A P _ I B M (SPACE) 1 then ENTER .
The MAP starts and the MODEL SELECT shown Fig. 2-6 appears.

— NOTE —

·When you use a personal computer with two serial interface connectors and connect the DSP-R jig to serial interface connector 2, press MAP_IBM 2.

4) Select the number accodding to the model. If ESC (escape) is pressed, the display before the MAP starts (MS-DOS) is restored.

5) Press Y key. (Fig. 2-7)
IF N is pressed, the computer's display returns to MODEL SELECT MENU.

— NOTE —

1. If you specify the wrong model, press ESC (escape) to restore the MODEL SELECT display, then specify the correct model.
2. If you select number without a model name by mistake, the message shown in Fig. 2-9 will appear in the computer's display. Press any key to return the display to Fig. 2-6 (MODEL SELECT).
3. If the required model is not found, press the P key and select the model from the next screen.

(A)

↓

```
F>B:
B>MAP_IBM 1
```

Fig. 2-4

↓

```
Manual adjustment program for service station
Copyright (C) Hitachi LTD
```

Fig. 2-5

↓

MODEL SELECT

```
**********************************************
*************** MODEL SELECT *****************
**********************************************

        [1]    XXXXXXXX
        [2]    XXXXXXXX
        [3]    XXXXXXXX
        [4]    XXXXXXXX
        [5]    XXXXXXXX
        [P]    NEXT SELECTION
        [ESC]  END

   Please select the type of the set.
   Press [1] - [5] or [P] or [ESC]
```

Fig. 2-6

↓

Press numeric key

↓

```
Selected model is XXXXXXXX
Are you sure ?  (Y/N)
```

Fig. 2-7

↓

Press Y

↓

MAIN MENU

```
**********************************************
********* MANUAL ADJUSTMENT PROGRAM **********
**********************************************

        [A]    DATA INITIALIZE
        [B]    ELECTRIC VOLUME
        [C]    ADJUSTMENT
        [D]    AUTO FOCUS
        [E]    VCR ADJUSTMENT
        [F]    EIS
        [G]    SPOT NOISE
        [ESC]  END

   Please select [A] - [G] or [ESC]
```

Fig. 2-8

MESSAGE WHEN OPERATED BY MISTAKE

```
Can not find the DATA FILE
**** PRESS ANY KEY ****
```

Fig. 2-9

7-3. Initial Setting by Model

◆ Before Starting Adjstment

- This item describes how to initialize the EEP ROM. Be sure to perform this item after replacing EEP ROM or the VCA circuit board. When other components are replaced, normally, it is not necessary to initialize the EEP ROM. Press ESC (escape) to return the computer's display to MAIN MENU.
- Be sure to perform the following adjustments after completing the initial setting.

CAMERA	7-4	Electric Volume Adjustment Procedure
	7-5	Digital Adjustment Procedure
	7-6	Autofocus Adjustment Procedure
VCR	7	System Control/Servo Circuits Adjustment

—— PROCEDURE ——

1) Start the MAP.

2) Press A to select INITIALIZE. (Figs. 2-10, 2-11)

3) Press Y to start. (Figs. 2-11, 2-12)

— NOTE —

·Press N to return to MAIN MENU. (Fig. 2-11)

·The Fig. 2-11 appears a few time Press the Y key each time.

4) If there are no abnormalities in the camera/recorder, the message shown in Fig. 2-12 is displayed in the computer's display for a while, and then the message informing you that the initial setting has been completed (shown in Fig. 2-13) is displayed.

5) If the message shown in Fig. 2-13 appears in the computer's display, press any key. The computer's display returns to Fig. 2-10 (MAIN MENU).

MAIN MENU

```
**********************************************
******** MANUAL ADJUSTMENT PROGRAM ***********
**********************************************
          [A]   DATA INITIALIZE
          [B]   ELECTRIC VOLUME
          [C]   ADJUSTMENT
          [D]   AUTO FOCUS
          [E]   VCR ADJUSTMENT
          [F]   EIS
          [G]   SPOT NOISE
          [ESC] END
     Please select [A] - [G] or [ESC]
```

Fig. 2-10

⬇

Press A

⬇

```
<< DATA WRITING >>
START TO SEND DATA.    (Y/N)
```

Fig. 2-11

⬇

Press Y

⬇

```
<< DATA WRITING >>
PLEASE WAIT A MOMENT.
```

Fig. 2-12

⬇

```
<< DATA WRITING >>
PLEASE WAIT A MOMENT.
FINISHED WRITING DATA.
PRESS ANY KEY.
```

Fig. 2-13

⬇

Press any key to return to Fig. 2-10

7-4. Electric Volume Adjustment Procedure

◆ Before Starting Adjstment

·When EEP ROM or the VCA circuit board is replaced, initialize the EEP ROM, referring to "7-3. Initial Setting By Model" then perform all the electric volume adjustments.

—— PROCEDURE ——

1) Start the MAP.

2) Press B to select ELETRIC VOLUME. (Figs. 2-14, 2-15)

3) Select the number of the required adjustment.

— NOTE —

1. If ESC (escape) is pressed, the computer's display returns to Fig. 2-14 (MAIN MENU).
2. To complete adjustment, press the ESC (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

MAIN MENU

```
**********************************************
******** MANUAL ADJUSTMENT PROGRAM ***********
**********************************************
          [A]   DATA INITIALIZE
          [B]   ELECTRIC VOLUME
          [C]   ADJUSTMENT
          [D]   AUTO FOCUS
          [E]   VCR ADJUSTMENT
          [F]   EIS
          [G]   SPOT NOISE
          [ESC] END
     Please select [A] - [G] or [ESC]
```

Fig. 2-14

⬇

Press B

⬇

ELECTRIC VOLUME ADJ. MENU

```
**********************************************
************ ELECTRIC VOLUME *****************
**********************************************
  [1]   CDS OFFSET
  [2]   CDS SAMPLING PULSE
  [ESC] RETURN TO MAIN MENU
     Please select [1], [2] or [ESC]
```

Fig. 2-15

(1) CDS Offset Adjustment

Purpose	·To determine the DC offset levels when the AGC is set to the minimum and maximum gains.
Incompleted Phenomenon	·When a subject is illuminated brightly in low lighting, a white band appears across the top of the screen.
Test Point	———
Equipment/Jig	———
Condition	———

PROCEDURE

ELECTRIC VOLUME ADJ. MENU

```
************************************************
************** ELECTRIC VOLUME ***************
************************************************
   [1]    CDS OFFSET
   [2]    CDS SAMPLING PULSE
   [ESC]  RETURN TO MAIN MENU
       Please select [1], [2] or [ESC]
```

⇩

Press [1] key to select the CDS OFFSET.

⇩

```
<< ADJUSTMENT OF CDS OFFSET >>
PLEASE WAIT AROUND 50 SEC.
```

⇩

```
<< ADJUSTMENT OF CDS OFFSET >>
PLEASE WAIT AROUND 50 SEC.
FINISHED WRITING DATA.
ADJUSTMENT COMPLETED.
PRESS ANY KEY.
```

⇩

Press any key to return to ELECTRIC VOLUME ADJ. MENU.

⇩

Turn the power off for 5 seconds and then on again.

(2) CDS Sampling Pulse Adjustment

Purpose	·To suppress noise in the CCD sensor output signal and maximize the signal level.
Incompleted Phenomenon	·Diagonal beats and horizontal noise occur.
Test Point	———
Equipment/Jig	———
Condition	·Leave the camera/recorder for more than 2 minutes untill the circuits are stabilized after turing it on, then start adjustment.

PROCEDURE

ELECTRIC VOLUME ADJ. MENU

```
************************************************
************** ELECTRIC VOLUME ***************
************************************************
   [1]    CDS OFFSET
   [2]    CDS SAMPLING PULSE
   [ESC]  RETURN TO MAIN MENU
       Please select [1], [2] or [ESC]
```

⇩

Press [2] key to select the CDS SAMPLING PULSE.

⇩

```
<< ADJUSTMENT OF CDS SAMPLING PULSE >>
<< NOW ADJUSTING >>
```

⇩

```
<< ADJUSTMENT OF CDS SAMPLING PULSE >>
FINISHED WRITING DATA.
ADJUSTMENT COMPLETED.
PRESS ANY KEY.
```

⇩

Press any key to return to ELECTRIC VOLUME MENU.

7-5. Digital Adjustment Procedure

◆Before Starting Adjustment

- When EEP ROM or the VCA circuit board is replaced, initialize the EEP ROM, referring to "7-3 Initial Setting By Model" then perform all the digital adjustments.

NOTE: If an old light box is used , this adjustnment may not be done. Use the following procedure to adjust without using a light box.

- Illuminate a white sheet of paper using an appropriate light source of 2,000-2,500lux (a halogen light of 3,200K is desirable).
- Point the camera/recoder at the illuminated white sheet of paper to fill the screen as far as possible (at wide-angle).
- Adjust the distance between the camera /recoder and white sheet of paper so that no error message appears.

◆Caution when adjustment

Caution: Perform auto iris adjustment [1. AUTO IRIS CONTROL] and knee adjustment [2. KNEE] in the following order.

① Auto Iris Adjustment (Perform the following autofocus adjustment if "ADJUSTMENT OF HALL CURVE" is not completed).
② Zoom Trace Adjustment in AUTOFOCUS ADJUSTMENT PROCEDURE.
③ AF Noise Level Adjustment in AUTOFOCUS ADJUSTMENT PROCEDURE.
④ Auto Iris Adjustment (All three items, "ADJUSTMENT OF IRIS OPEN & CLOSE", "ADJUSTMENT OF IRIS" and "ADJUSTMENT OF HALL CURVE" should be complete).
⑤ Knee Adjustment.

—— PRROCEDURE ——

1) Start the MAP.

2) Press [C] to select ADJUSTMENT. (Figs. 2-16, 2-17)

3) Select the number of the required adjustment.

—— NOTE ——

1. If [ESC] (escape) is pressed, the computer's display returns to Fig. 2-16 (MAIN MENU).
2. To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

MAIN MENU

```
************************************************
********* MANUAL ADJUSTMENT PROGRAM ***********
************************************************
        [A]    DATA INITIALIZE
        [B]    ELECTRIC VOLUME
        [C]    ADJUSTMENT
        [D]    AUTO FOCUS
        [E]    VCR ADJUSTMENT
        [F]    EIS
        [G]    SPOT NOISE
        [ESC]  END
    Please select [A] - [G] or [ESC]
```

Fig. 2-16

⇩

Press [C]

⇩

ADJUSTMENT MENU

```
************************************************
*************** ADJUSTMENT *********************
************************************************
        [1]    AUTO IRIS CONTROL
        [2]    KNEE
        [3]    MATRIX
        [4]    WHITE BALANCE
        [5]    CHROMA GAIN
        [ESC]  RETURN TO MAIN MENU
    Please select [1] - [5] or [ESC]
```

Fig. 2-17

(1) Auto Iris Control Adjustment

• Perform this adjustment, following the order described in "◆ Caution When Adjustment" on the previous page.	
Purpose	·To set the iris control data.
Incompleted Phenomenon	·The picture becomes too bright. ·The picture becomes too dark.
Test Point	————
Equipment/Jig	————
Condition	·Point the camera at the light box without a chart to full the screen (at wide-angle).

PROCEDURE

ADJUSTMENT MENU

```
**********************************************
*************** ADJUSTMENT *******************
**********************************************
        [1]    AUTO IRIS CONTROL
        [2]    KNEE
        [3]    MATRIX
        [4]    WHITE BALANCE
        [5]    CHROMA GAIN
        [ESC]  RETURN TO MAIN MENU
    Please select [1] - [5] or [ESC]
```

Press [1] key to select the AUTO IRIS CONTROL.

```
<<ADJUSTMENT OF IRIS OPEN & CLOSE>>
    PLEASE WAIT AROUND 10 SEC.
```

```
<<ADJUSTMENT OF IRIS OPEN & CLOSE>>
    PLEASE WAIT AROUND 10 SEC.
    DATA WRITEN INTO EEPROM.
    ADJUSTMENT FINISHED.
    PRESS ANY KEY.
```

Press any key, and the display changes as follows.

```
<< ADJUSTMENT OF IRIS >>
PLEASE WAIT AROUND 20 SEC.
```

※1

```
<< ADJUSTMENT OF IRIS >>
PLEASE WAIT AROUND 20 SEC.
ROUGH ADJUSTMENT     : xx TIMES
FINE ADJUSTMENT      : xx TIMES
    ADJUSTMENT FINISHED.
    PRESS ANY KEY.
```

(B)

(B)

Press any key, and the display changes as follows.

```
<< ADJUSTMENT OF HALLCURVE >>
PLEASE WAIT AROUND 30 SEC.
```

※2

```
<< ADJUSTMENT OF HALLCURVE >>
PLEASE WAIT AROUND 30 SEC.
*
ADJUSTMENT POINT 0 1 2 3 4 5 6 7 8 9 A B C
```

```
<< ADJUSTMENT OF HALLCURVE >>
PLEASE WAIT AROUND 30 SEC.
* * * * * * * * * * * * * *
ADJUSTMENT POINT 0 1 2 3 4 5 6 7 8 9 A B C
    DATA WRITTEN INTO EEPROM
    ADJUSTMENT FINISHED
    PRESS ANY KEY
```

Press any key, and the display changes as follows.

```
ADJUSTMENT FINISHED.
PRESS ANY KEY.
```

Press any key to return to ADJUSTMENT MENU.

Turn the power off for 5 seconds and then on again.

NOTE

1. With some units the following parameter may not be displayed in the display marked ※1. This is normal; continue adjustment.
   ROUGH ADJUSTMENT: xx TIMES
2. The * mark flashes above the numerals and letters in sequence in the display marked ※2.

(2) Knee Adjustment (Fig. 2-18)

• Perform this adjustment, following the order described in "◆ Caution When Adjustment" on the page before the previous page.	
Purpose	·To determine the knee level.
Incompleted Phenomenon	·Color in the very bright section is defective.
Test Point	·Video Out (AV OUT)
Equipment/Jig	·Oscilloscope (Waveform Monitor)
Condition	·Point at a gray scale chart.

PROCEDURE

ADJUSTMENT MENU

```
**********************************************
*************** ADJUSTMENT *******************
**********************************************
        [1]    AUTO IRIS CONTROL
        [2]    KNEE
        [3]    MATRIX
        [4]    WHITE BALANCE
        [5]    CHROMA GAIN
        [ESC]  RETURN TO MAIN MENU
    Please select [1] - [5] or [ESC]
```

Press [2] key to select the KNEE.

```
<< KNEE ADJUSTMENT >>  STEP 1
* THIS ADJUSTMENT ONLY NEEDED
      AFTER REPLACING IC1101 OR IC1107. *
* THE [1] IRIS CONTROL ADJUSTMENT
      SHOULD HAVE JUST BEEN COMPLETED
  BEFORE PERFORMING THE FOLLOWING KNEE
                ADJUSTMENT PROCEDURE. *
PLEASE POINT AT THE CHART AND
                PRESS THE FOLLOWING KEY.
      RETURN TO MENU    [ESC]
      GO TO NEXT STEP   [ENTER]
```

Press [ENTER] key to start the next step.

```
<< KNEE ADJUSTMENT >>  STEP 1
*** WAIT A MOMENT ***
```

(C)

(C)

```
<< KNEE ADJUSTMENT >>  STEP 2
SET LUMINANCE LEVEL TO
    100 (+/- 5) IRE OR 715 (+/- 35) mV.
        ROUGH ADJUSTMENT
[U]                 UP
[D]                 DOWN
        FINE ADJUSTMENT
[Ctrl] + [U]        UP
[Ctrl] + [D]        DOWN
[ENTER]             DECISION
```

Press the [U] and [D] keys to set the amplitude level to around 715mVp-p.
Press the [Ctrl] key and hold it down, then press the [U] and [D] keys to adjust the amplitude level to 715mVp ± 35mVp-p.

Press [ENTER] key to start the next step.

```
<< KNEE ADJUSTMENT >>  STEP 3
ADJUST THE LUMINANCE LEVEL TO
        MATCH THE LEVEL FROM SETP 2.
        ROUGH ADJUSTMENT
[U]                 UP
[D]                 DOWN
        FINE ADJUSTMENT
[Ctrl] + [U]        UP
[Ctrl] + [D]        DOWN
[C]   REREAD THE LEVEL FROM STEP 2
[ENTER]             DECISION
```

Press the [U] and [D] keys to bring the amplitude level near to the level in step 2.
Press the [Ctrl] key and hold it down, then press the [U] and [D] keys to match the amplitude level to that in step 2.

Press the [C] key. The level in step 2 can be checked.

```
<< KNEE ADJUSTMENT >>  STEP 3
WAVEFORM ON OSCILLOSCOPE IS NOW.
DISPLAYING AMPLITUDE AS SET IN SETP 2.
(PRESS C TO RETURN TO STEP 3 MENU)
```

(D)

(D)

Press [ENTER] key, and the display changes as follows.

<< KNEE ADJUSTMENT >> STEP 3
WRITING EEPROM NOW.

<< KNEE ADJUSTMENT >>
COMPLETED.
PRESS ANY KEY.

Press any key to return to ADJUSTMENT MENU.

Waveforms

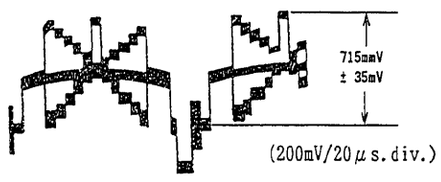


Fig. 2-18

(3) Matrix Adjustment (Fig. 2-19)

Purpose	To compensate for uneveness in the chroma signal.
Incompleted Phenomenon	Color reproduction becomes defective.
Test Point	·Video Out (AV OUT)
Equipment/Jig	·Oscilloscope
Condition	·Point at a color bar chart.

PROCEDURE

ADJUSTMENT MENU

```
**************************************************
*************** ADJUSTMENT ***********************
**************************************************
        [1]   AUTO IRIS CONTROL
        [2]   KNEE
        [3]   MATRIX
        [4]   WHITE BALANCE
        [5]   CHROMA GAIN
        [ESC] RETURN TO MAIN MENU
    Please select [1] - [5] or [ESC]
```

(E)

(E)

Press [3] key to select the MATRIX.

```
<< ADJUSTMENT OF BLUE MATRIX >>
        ROUGH ADJUSTMENT
    [U]             UP
    [D]             DOWN
        FINE ADJUSTMENT
    [Ctrl] + [U]    UP
    [Ctrl] + [D]    DOWN
    [ENTER]         RETURN TO MENU
    [ESC]           QUIT
```

[For Normal 8]

Press the [D] key to minimize the yellow (YEL) level. Press the [U] key so the ratio between yellow (YEL) and blue (BLU) levels is 3:8
Press the [Ctrl] key and hold it down, then press the [U] and [D] keys so the ratio between yellow (YEL) and blue (BLU) levels is 3:8

[For Hi-8]

Press the [D] key to minimize the yellow (YEL) level. Press the [U] key so the ratio between yellow (YEL) and blue (BLU) levels is 1:2
Press the [Ctrl] key and hold it down, then press the [U] and [D] keys so the ratio between yellow (YEL) and blue (BLU) levels is 1:2

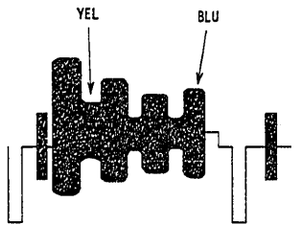
Press [ENTER] key, and the display changes as follows.

<< ADJUSTMENT OF BLUE MATRIX >>
DATA WRITING TO EEPROM.

<< ADJUSTMENT OF BLUE MATRIX >>
ADJUSTMENT FINISHED.
PRESS ANY KEY.

Press any key to return to ADJUSTMENT MENU.

Waveforms



YEL : BLU
3 : 8 [For Normal 8]
1 : 2 [For Hi-8]

(200mV/50μs.div.)

Fig. 2-19

(4) White Balance Adjustment

Purpose	To set white balance under the color temperature which becomes a reference for the auto white balance circuit.
Incompleted Phenomenon	·Color of the subject is different from that of the picture. ·A white subject is not seen as white.
Test Point	·Video Out (AV OUT)
Equipment/Jig	———
Condition	·Attach a C12 filter. ·Point at a gray scale chart (at wide-angle).

PROCEDURE

ADJUSTMENT MENU

```
**************************************************
*************** ADJUSTMENT ***********************
**************************************************
        [1]   AUTO IRIS CONTROL
        [2]   KNEE
        [3]   MATRIX
        [4]   WHITE BALANCE
        [5]   CHROMA GAIN
        [ESC] RETURN TO MAIN MENU
    Please select [1] - [5] or [ESC]
```

Press [4] key to select the WHITE BALANCE.

<< WHITE BALANCE ADJUSTMENT >>
INPUT DATA OF OFFSET FOR R-B --> 00

[For Normal 8]

Press [1] [6] to input the data.

[For Hi-8]

Press [1] [0] to input the data.

Press [ENTER] key, and the display changes as follows.

(F)

(F)

<< WHITE BALANCE ADJUSTMENT >>
INPUT DATA OF OFFSET FOR Mg-G --> 00

[For Normal 8]

Press [0] [A] to input the data.

[For Hi-8]

Press [0] [A] to input the data.

Press [ENTER] key, and the display changes as follows.

<< WHITE BALANCE ADJUSTMENT >>
PLEASE WAIT A MOMENT.

<< WHITE BALANCE ADJUSTMENT >>
ADJUSTMENT COMPLETED.
COMPLETED EEPROM WRITE.
PRESS ANY KEY.

Press any key to return to ADJUSTMENT MENU.

(5) Chroma Gain Adjustment (Figs. 2-20, 2-21)

Purpose	To set the color saturation under the reference color temperature.
Incompleted Phenomenon	·Color of the picture is denser than that of the subject. ·Color of the picture is lighter than that of the subject.
Test Point	·Video Out (AV OUT)
Equipment/Jig	·Oscilloscope (Vectorscope)
Condition	·Attach a C12 filter. ·Point at a color bar chart.

PROCEDURE

ADJUSTMENT MENU

```
************************************************
********** ADJUSTMENT **********
************************************************
        [1]   AUTO IRIS CONTROL
        [2]   KNEE
        [3]   MATRIX
        [4]   WHITE BALANCE
        [5]   CHROMA GAIN
        [ESC] RETURN TO MAIN MENU
    Please select [1] - [5] or [ESC]
```

Press [5] key to select the CHROMA GAIN.

```
<< ADJUSTMENT OF CHROMA GAIN >>

        ROUGH ADJUSTMENT
  [U]       CHROMA GAIN UP
  [D]       CHROMA GAIN DOWN

        FINE ADJUSTMENT
[Ctrl] + [U]    CHROMA GAIN UP
[Ctrl] + [D]    CHROMA GAIN DOWN

[ENTER]     SAVE & RETURN TO MENU
[ESC]       QUIT
```

WHEN USING AN OSCILLOSCOPE

Press the [U] and [D] keys to set the red level to around 450mVp-p.
Press the [Ctrl] button and hold it down, then press the [U] and [D] keys so the red level is 450mV ± 20mVp-p. (Fig. 2-20)

(G)

(G)

WHEN USING A VECTORSCOPE

Press the [U] and [D] keys to set the red vector to around 150% of the burst.
Press the [Ctrl] button and hold it down, then press the [U] and [D] keys so the red vector is 150% ± 5%. (Fig. 2-21)

Press [ENTER] key, and the display changes as follows.

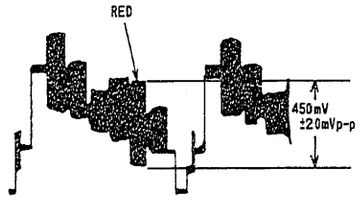
```
<< ADJUSTMENT OF CHROMA GAIN >>
    DATA WRITING INTO EEPROM.
```

```
<< ADJUSTMENT OF CHROMA GAIN >>
    ADJUSTMENT FINISHED.
    PRESS ANY KEY.
```

Press any key to return to ADJUSTMENT MENU.

Waveforms

<< OSCILLOSCOPE >>



(100mV/20μs.div.)

Fig. 2-20

<< VECTORSCOPE >>

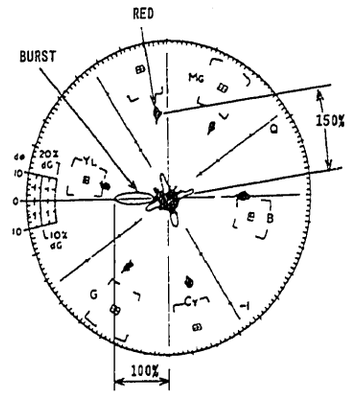


Fig. 2-21

7-6. Autofocus Adjustment Procedure

◆Before Starting Adjustment

• Be sure to perform this adjustment after replacing or initializing the lens block, parts in the VCA circuit board (EEPROM).

PROCEDURE

1) Start the MAP.

2) Press [D] to select AUTO FOCUS. (Figs. 2-22, 2-23.)

3) Select the number of the required adjustment.

NOTE

1. If [ESC] (escape) is pressed, the computer's display returns to Fig. 2-22 (MAIN MENU).
2. To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

MAIN MENU

```
************************************************
********* MANUAL ADJUSTMENT PROGRAM **********
************************************************
        [A]   DATA INITIALIZE
        [B]   ELECTRIC VOLUME
        [C]   ADJUSTMENT
        [D]   AUTO FOCUS
        [E]   VCR ADJUSTMENT
        [F]   EIS
        [G]   SPOT NOISE
        [ESC] END
    Please select [A] - [G] or [ESC]
```

Fig. 2-22

Press [D]

AF ADJ. MENU

```
************************************************
********** AUTO FOCUS ADJUSTMENT **********
************************************************
    [1]   ADJUSTMENT OF ZOOM/FOCUS TRACKING
    [2]   ADJUSTMENT OF AF NOISE LEVEL
    [ESC] RETURN TO MENU
    Please select [1], [2] or [ESC]
```

Fig. 2-23

(1) Zoom/Focus Tracking Adjustment

Purpose	·To set the out-of-focus correction level during zooming.
Incompleted Phenomenon	·Focus is lost during zooming.
Equipment/Jig	·Color Video Monitor ·Backfocus Chart
Test Point	·Video Out (AV OUT)
Condition	·Point at the backfocus chart, 1500±5 mm away from the lens surface. ·Light the chart with 200-400 lux.

Caution When Adjustment

1. Measure the distance between the chart and lens surface precisely.
2. Place the chart as parallel as possible to the lens surface.
3. The backfocus chart should always be at the center of the monitor screen when the zoom is set to the wide-angle and telephoto ends.
4. The zoom trace adjustment procedure is completed within 2 minutes after it is selected.
5. Do not place any obstruction between the lens and chart during adjustment.

PROCEDURE

AF ADJ. MENU

```
************************************************
********** AUTO FOCUS ADJUSTMENT **********
************************************************
    [1]   ADJUSTMENT OF ZOOM/FOCUS TRACKING
    [2]   ADJUSTMENT OF AF NOISE LEVEL
    [ESC] RETURN TO MENU
    Please select [1], [2] or [ESC]
```

Press [1] key to select ADJUSTMENT OF ZOOM/FOCUS TRACKING

```
<< ADJUSTMENT OF ZOOM/FOCUS TRACKING >>
        0%      50%      100%
```

```
<< ADJUSTMENT OF ZOOM/FOCUS TRACKING >>
        0%      50%      100%
    ADJUSTMENT COMPLETED.
    PRESS ANY KEY.
```

Press any key to return to AF ADJ. MENU.

(2) AF Noise Level Adjustment

Purpose	·To set the noise level.
Incompleted Phenomenon	·It takes time until a subject is brought into focus.
Equipment/Jig	·Correct focus is not obtained. ·Color Video Monitor
Test Point	·Video Out (AV OUT)
Condition	·Set the focus to AUTO. ·Point at a light box without a chart inserted at a distance of up to 10cm.

Caution When Adjustment

1. Place the light box as parallel as possible to the lens surface.
2. The AF noise level adjustment procedure will be completed within thirty seconds after it is selected.

PROCEDURE

AF ADJ. MENU

```
************************************************
********** AUTO FOCUS ADJUSTMENT *************
************************************************
    [1]   ADJUSTMENT OF ZOOM/FOCUS TRACKING
    [2]   ADJUSTMENT OF AF NOISE LEVEL
    [ESC] RETURN TO MENU
      Please select [1], [2] or [ESC]
```

↓

Press [2] key to select ADJUSTMENT OF AF NOISE LEVEL.

↓

```
<< ADJUSTMENT OF AF NOISE LEVEL >>
        |-------|-------|
        0%      50%     100%
```

↓

```
<< ADJUSTMENT OF AF NOISE LEVEL >>
        ▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓
        0%      50%     100%
    ADJUSTMENT COMPLETED.
      PRESS ANY KEY.
```

↓

Press any key to return to AF ADJ. MENU.

7-7. Stabilizer Adjustment Procedure

◆Before Starting Adjustment

- Be sure to perform this adjustment after replacing or initializing the SPE circuit board and VCA circuit board (EEPROM).
- This item describes how to rewrite the stabilizer data. The average of the stabilizer data will be written.

—— PROCEDURE ——

1) Start the MAP.

—— NOTE ——

1. If [ESC] (escape) is pressed, the computer's display returns to MAIN MENU.
2. To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

2) Press [F] to select EIS.

3) Press [Y] key.

—— NOTE ——

1. If [N] is pressed, the computer's display returns to MAIN MENU.
2. If a key other than Y or N is pressed, "PLEASE SELECT (Y/N)?" is displayed.

4) The stabilizer data is rewritten automatically.

5) Press any key to return to MAIN MENU.

MAIN MENU

```
************************************************
********* MANUAL ADJUSTMENT PROGRAM ***********
************************************************
        [A]   DATA INITIALIZE
        [B]   ELECTRIC VOLUME
        [C]   ADJUSTMENT
        [D]   AUTO FOCUS
        [E]   VCR ADJUSTMENT
        [F]   EIS
        [G]   SPOT NOISE
        [ESC] END
    Please select [A] - [G] or [ESC]
```

↓

Press [F]

↓

```
<<DATA WRITING>>
START TO SEND DATA          (Y/N)
```

↓

Press [Y]

↓

```
FINISHED WRITING DATA.
PRESS ANY KEY.
```

↓

Press any key to return to MAIN MENU.

Press any key to return to MAIN MENU.

7-8. SPOT NOISE ADJUSTMENT PROCEDURE

◆Before Starting Adjustment

- The spot noise is identified as the fine white noise that appears when the lens cap is attached after the power is turned on.
- Perform this adjustment only for products with which spot noise occurs. (However, there is no problem even if products free from spot noise are adjusted.)
- After replacing the CCD image sensor or VCA circuit board (EEPROM), check whether or not spot noise occurs and then proceed with adjustment.

—— PROCEDURE ——

1) Start the MAP.

—— NOTE ——

1. If ESC (escape) is pressed, the computer's display returns to MAIN MENU.
2. To complete adjustment, press the ESC (escape) key twice to restore the MS-DOS screen and then turn off the camera/recoder and jig.

2) Cap the lens

3) Connect the color video monitor to video out.

4) Press G key to select SPOT NOISE.

—— NOTE ——

·The adjustment procedure in this item is different depending on the amount of · spot noise.

MAIN MENU

```
**********************************************
********* MANUAL ADJUSTMENT PROGRAM ***********
**********************************************

          [A]   DATA INITIALIZE
          [B]   ELECTRIC VOLUME
          [C]   ADJUSTMENT
          [D]   AUTO FOCUS
          [E]   VCR ADJUSTMENT
          [F]   EIS
          [G]   SPOT NOISE
          [ESC] END

     Please select [A] - [G] or [ESC]
```

Press G

Note: The amount of spot noise is displayed in place marked ×.

One spot noise

```
**********************************
**** SPOT NOISE COMPENSATE ****
**********************************

     A SPOT NOISE FOUND.
     PRESS ANY KEY.
```

Much spot noise

```
**********************************
***** SPOT NOISE COMPENSATE ****
**********************************

     × SPOT NOISE FOUND
     PRESS ANY KEY.
```

Spot noise is not detected (when camera/recorder free from spot noise are adjusted)

```
**********************************
***** SPOT NOISE COMPENSATE ****
**********************************

     CANNOT FIND THE SPOT NOISE.
     PRESS ANY KEY.
```

Press any key to return to MAIN MENU.

Press any key.

(H)

(H)

```
**********************************
******** SPOT NOISE COMPENSATE ********
**********************************

 CAN YOU SEE THE BLINKING CURSOR ?(Y/N)
```

A cursor blinks in the section where spot noise occurs on the monitor screen.

YES → Press Y key.

NO → Press N key.

```
**********************************************
************ SPOT NOISE COMPENSATE ************
**********************************************

          LOOK AT THE CURSOR POINT.
WHILE YOU CAN SEE THE SPOT NOISE, PRESS SPACE KEY.
IF THE SPOT NOISE CLEARS, THEN PRESS ENTER KEY.
```

Check whether or not spot noise disappears after auto adjustment is completed.
If it does not disappear: Press the space key.
If it disappears : Press the enter key.

```
**********************************************
************ SPOT NOISE COMPENSATE ************
**********************************************

 THIS SPOT NOISE IS IN THE BLANKING AREA OF TV.

          PRESS ANY KEY.
```

Press any key.

There are other occurrences of spot noise. → (H)

Spot noise compensation is completed.

```
**********************************
****** SPOT NOISE COMPENSATE ******
**********************************

          COMPLETE.

          PRESS ANY KEY.
```

Press any key to Return to MAIN MENU.

8. ELECTRONIC VIEWFINDER (EVF) ADJUSTMENT

8-1. CRT EVF Adjustment

Adjustment Parts Locations

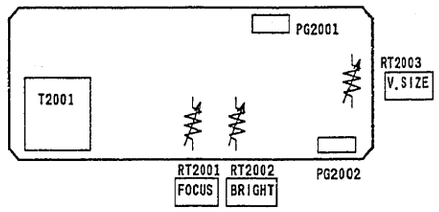


Fig. 2-24 Electronic Viewfinder (EMQ) Circuit Board (SIDE-A)

(1) Deflection Yoke Position, EVF Centering Adjustment

Purpose	·This adjustment procedure eliminates picture tilt in the EVF display. ·This adjustment centers the image observed by the camera in the EVF display.		
Equipment/Jig	Test Points	Condition	Adjustment Points
·EVF Display		·Aim the resolution chart.	·DEFLECTION YOKE (Deflection Yoke Position) ·CENTRING MAGNETS (EVF Centring)

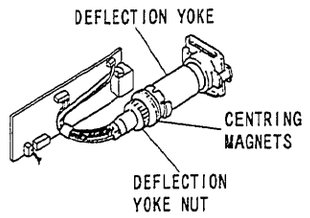
Adjustment Procedure

《Deflection Yoke Position》
1) Loosen the deflection yoke nut.
2) Turn the deflection yoke so that the EVF picture (chart) is horizontal, matching the edges of the CRT.

Note: (After adjustment is completed, tighten the deflection yoke nut.)

《EVF Centring》
1) Remove the locking paint from the centring magnet.
2) Adjust the centring magnets until the center of the picture viewed by the camera is positioned in the center of the EVF display.

Adjustment Points



(2) EVF Vertical Size Adjustment (Fig. 2-24)

Purpose	This adjustment determines the vertical size of the image appearing in the EVF display.		
Equipment/Jig	Test Points	Condition	Adjustment Points
·EVF Display		·Aim the resolution chart.	·RT2003 (V.SIZE) EMQ

Adjustment Procedure

1) RT2003: Set the top and bottom edges of the chart match the top and bottom edges of the CRT.

(3) EVF Brightness Adjustment (Fig. 2-24)

Purpose	This adjustment sets the brightness of the picture in the EVF display.		
Equipment/Jig	Test Points	Condition	Adjustment Points
·EVF Display		·Aim the resolution chart.	·RT2002 (BRIGHT) EMQ

Adjustment Procedure

1) RT2002: Set to optimize the EVF picture.

(4) EVF Focus Adjustment (Fig. 2-24)

Purpose	This control adjusts for optimum focus of the electronic viewfinder picture.		
Equipment/Jig	Test Points	Condition	Adjustment Points
·EVF Display		·Aim the resolution chart.	·RT2001 (FOCUS) EMQ

Adjustment Procedure

1) RT2001: Set the EVF picture is clear.

8-2. LCD EVF Adjustment

Adjustment Parts Locations

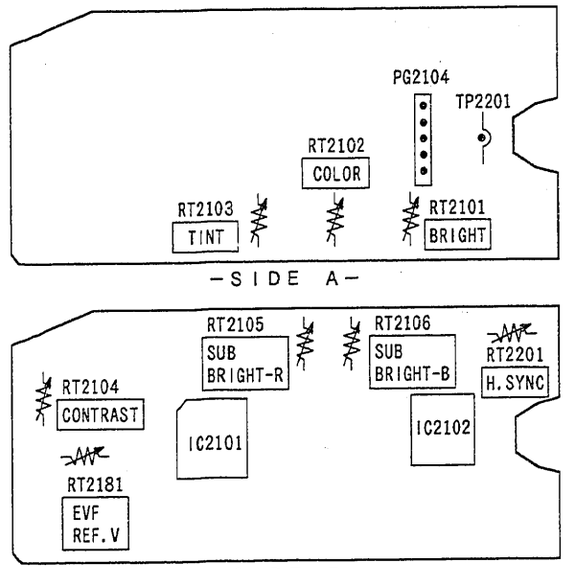


Fig. 2-25 Color EVF (CRE) Circuit Board

(1) Output Voltage Adjustment (Fig. 2-25)

Equipment/Jig	Test Points	Condition	Adjustment Points
·DVM	·PG2104-5 CRE	———	·RT2181 (EVF REF.V) CRE

Adjustment Procedure

1) RT2181: Set the DVM reads 12.0V ± 0.1V.

(2) H.Drive Frequency Adjustment (Fig. 2-25)

Equipment/Jig	Test Points	Condition	Adjustment Points
·DVM	·TP2201 CRE	———	·RT2201 (H.SYNC) CRE

Adjustment Procedure

1) RT2201: Set the DVM reads 2.5V ± 0.1V.

(3) Brightness, Contrast Adjustment (Fig. 2-25)

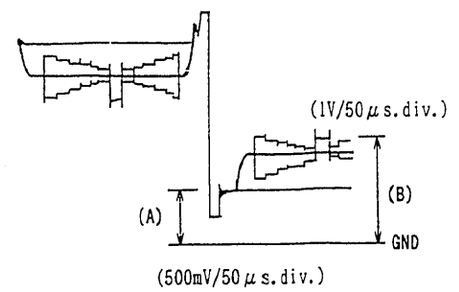
Equipment/Jig	Test Points	Condition	Adjustment Points
·Osilloscope (DC mode)	·PG2104-4 CRE	·Aim at the gray scale chart	·RT2101 (BRIGHT) CRE ·RT2104 (CONTRAST) CRE

Adjustment Procedure

《BRIGHT》
1) RT2101: Set the section (A) in the waveform is 2.5±0.1Vp-p.

《CONTRAST》
1) RT2104: Set the section (B) in the waveform is 4.7±0.1Vp-p.

Waveforms



(4) Sub-Bright Adjustment (Fig. 2-25)

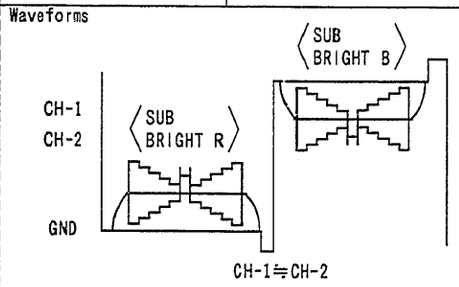
Equipment/Jig	Test Points	Condition	Adjustment Points
·Osilloscope (DC mode)	·CH-1: PG2104-4 CRE ·CH-2: PG2104-3 CRE (SUB BRIGHT B) PG2104-2 CRE (SUB BRIGHT R)	·Aim at the gray scale chart	·RT2106 CRE (SUB BRIGHT B) ·RT2105 CRE (SUB BRIGHT R)

Adjustment Procedure

《SUB BRIGHT B》
1) Match the 0V DC between CH-1 and CH-2
2) RT2106: Match the CH-1 and CH-2 waveforms. If the CH-1 and CH-2 waveforms do not match, shape each waveform.

《SUB BRIGHT R》
1) Match the 0V DC between CH-1 and CH-2
2) RT2105: Match the CH-1 and CH-2 waveforms. If the CH-1 and CH-2 waveforms do not match, shape each waveform.

Waveforms



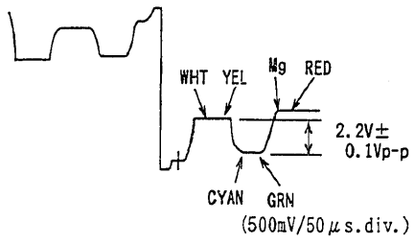
(5) Chroma Gain and Color Phase Adjustment (Fig. 2-25)

Equipment/Jig	Test Points	Condition	Adjustment Points
·Osilloscope	·PG2104-2 CRE	·Aim at the color bar chart (Input the full color bar signal.)	·RT2102 (COLOR) CRE ·RT2103 (TINT) CRE

Adjustment Procedure

1) Adjust RT2103 to minimize the fluctuations the waveform.
2) Adjust RT2102 so the difference in the level between yellow and cyan is 2.2V ± 0.1Vp-p.

Waveforms



3. VCR SECTION ADJUSTMENT

1. CIRCUIT BOARD LOCATIONS

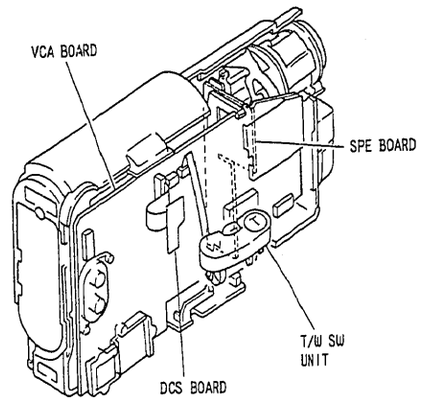


Fig. 3-1

2. TEST EQUIPMENT AND ALIGNMENT TAPES NECESSARY FOR ADJUSTMENT

1) Test Equipment
- ·Oscilloscope (dual trace)
- ·Digital Voltmeter (DVM)
- ·Frequency Counter
- ·Millivoltmeter
- ·Color Video Monitor
- ·Color Bar Generator

2) Alignment Tape, etc.
- ·Adjustment Floppy Disk
- ·Personal Computer
- ·Personal Computer 9-pin or 25-pin (RS232C) Cable
- ·DSP-R Jig
- ·DSP AV Output Cable
- ·Alignment Tape (20HSC-3)
- ·Blank Tape
- ·ATF-R Jig
- ·DC Power Supply (DC 0-7V/3A)
- ·DC Power Supply (DC 5V/1A)

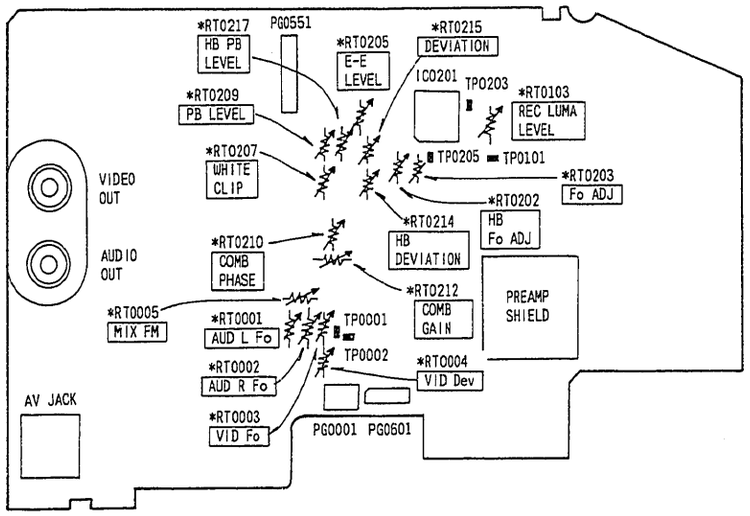
3. ADJUSTMENT CONDITION

1) Check that the camera section has been adjusted correctly before adjusting the VCR section.
2) Connect this unit, a power supply and a color video monitor as shown in Fig. 1-1.
3) Use the 10:1 probe of the oscilloscope when other not specified.
4) When "Record mode" is specified, load a blank tape and set the 8mm video camera/recorder to the record mode by the following procedure.
   ① Set the CAMERA/OFF/VCR switch to the CAMERA position.
   ② Press the REC START/STOP button on the unit (or REC START/STOP button on the remote control).
5) Before adjusting the resistors marked with asterisks (*) in the following text, remove the corresponding laser trimming resistors to replace them with the specified semi-variable resistors.
6) Before unsoldering laser trimming resistors be sure to confirm each adjustment value. Remove only the resistors used in the adjustment items that should be adjusted.
7) Earth of test equipment: Pre-Amp Shield (GND).

4. PRESET POSITIONS OF SWITCHES AND CONTROLS DURING ADJUSTMENT

- ·CAMERA/OFF/VCR switch ..... "VCR" position
- ·TITLE ..... Not Display mode

5. ADJUSTMENT COMPONENTS LOCATIONS



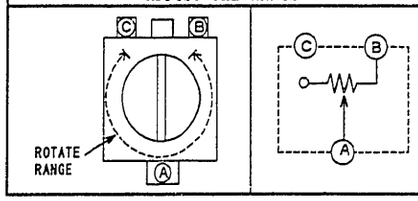
NOTE

- Variable resistors marked "*" are laser trimming resistor.
- Test point (TP) are not actually provided on the circuit board.

Fig. 3-2 Main (VCA) Circuit Board [SIDE A]

Table.3-1 SEMI-VARIABLE RESISTORS TABLE

ADJUST POINT	SEMI-VARIABLE RESISTOR (Ω)	CIRCUIT BOARD	NAME OF ADJUSTMENT
RT0103	470	VCA	REC LUMA LEVEL
RT0202	22K		HB Fo ADJ [For Hi-8]
RT0203	22K		Fo ADJ
RT0205	10K		E-E LEVEL
RT0207	22K		WHITE CLIP
RT0209	22K		PB LEVEL
RT0210	470		COMB PHASE
RT0212	2.2K		COMB GAIN
RT0214	10K		HB DEVIATION [For Hi-8]
RT0215	10K		DEVIATION
RT0217	22K		HB PB LEVEL [For Hi-8]
RT0001	2.2K		AUD L fo [For Type521]
RT0002	2.2K		AUD R fo [For Type521]
RT0003	10K		VID fo [For Type521]
RT0004	10K		VID Dev [For Type521]
RT0005	2.2K		MIX FM [For Type521]

ADJUST THE RANGE	INSTALLATION METHOD
	1) Remove the laser trimming resistor and attach the specified semi-variable resistor.

6. CHECK AFTER REPLACING MAJOR COMPONENTS IN THE VCR SECTION

After replacing major components, perform checks, referring to the table below.
The following table shows the minimum adjustments required after major components are placed.
The table below may not apply when several components are replaced, depending on the symptom of the defect.

Note: After replacing the parts, check each adjustment. If you find the items necessary to be adjusted, remove the corresponding laser trimming resistors and replace them with variable resistors for adjustment.

ITEM No.	NAME OF ADJUSTMENT	NAME OF MAJOR COMPONENTS					
		VCA BOARD	CYLINDER	IC901	IC201	IC202	IC0001
	SYSTEM CONTROL/SERVO CIRCUITS ADJUSTMENT						
(1)	Power Shut Off Level Adjustment	●		●			
(2)	Head Switching Point Adjustment	●	●	●			
	LUMINANCE/CHROMA CIRCUIT ADJUSTMENT						
(1)	Comb Filter Adjustment				●	●	
(2)	E-E Video Signal Level Adjustment				●		
(3)	White Clip Adjustment				●		
(4)	Carrier Frequency Adjustment				●		
(5)	Deviation Adjustment				●		
(6)	Record Luminance level Adjustment				●		
(7)	Playback Luminance Level Adjustment				●		
	AV TRANSMITTER CIRCUIT ADJUSTMENT						
(1)	FM Carrier Adjustment				●		●

7. SYSTEM CONTROL/SERVO CIRCUIT ADJUSTMENT

◆ Before Starting Adjustment

- System control adjustment also needs a personal computer. Connect the camera/recorder, jigs, power supply, etc. in the same way as in Digital Adjustment.
- Be sure to perform this adjustment after replacing or initializing the EEP ROM and VCA circuit board (EEPROM).
- When an error message appears during adjustment, refer to "4. Error Messages".
- If ESC (escape) is pressed, the computer's display returns to Fig. 3-3 (MAIN MENU).
- To complete adjustment, press the ESC (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

—— PROCEDURE ——

1) Start the MAP.

2) Press E to select VCR ADJUSTMENT. (Figs. 3-3, 3-4)

3) Select the number of the required adjustment.

MAIN MENU

```
**********************************************
********* MANUAL ADJUSTMENT PROGRAM ***********
**********************************************

        [A]   DATA INITIALIZE
        [B]   ELECTRIC VOLUME
        [C]   ADJUSTMENT
        [D]   AUTO FOCUS
        [E]   VCR ADJUSTMENT
        [F]   EIS
        [G]   SPOT NOISE
        [ESC] END

     Please select [A] - [G] or [ESC]
```

Fig. 3-3

↓

Press E

↓

VCR ADJ. MENU

```
**********************************************
*************** VCR ADJUSTMENT ***************
**********************************************

        [1]   ADJUSTMENT OF ODC
        [2]   ADJUSTMENT OF SWITCHING POINT
        [ESC] RETURN TO MAIN MENU

     Please select [1],[2] or [ESC]
```

Fig. 3-4

(1) Power Shut Off Level (ODC: Over Discharge) Adjustment

Purpose	· To set the minimum voltage required to opreate the camera/recorder.
Incompleted Phenomenon	· The usable time of the battery becomes short. · The camera/recorder doesn't operate normally.

Equipment/Jig	Test Points Connection Points	Condition	Adjustment Points
·DVM	·PG0551-8 (GND) VCA ·PG0551-1 VCA	·Load the brank tape ·Supply power (7.0±0.5V) to PG0551-1	
·DC Power Supply (0~7V)	·PG0551-8 (GND) VCA ·PG0551-1 VCA		
·Blank Tape			

Adjustment Procedure

VCR ADJ. MENU

```
**********************************************
************ VCR ADJUSTMENT ******************
**********************************************
    [1]    ADJUSTMENT OF ODC
    [2]    ADJUSTMENT OF SWITCHING POINT
    [ESC]  RETURN TO MAIN MENU
      Please select [1],[2] or [ESC]
```

↓

Press [1] key to select the ADJUSTMENT OF ODC.

↓

```
<< SET UP OF ODC ADJUSTMENT STARTED >>
PRESET POSITION OF 'CAMERA/OFF/VCR' SWITCH
'VCR' POSITION
SET POWER SOURCE AT 5.65 (+/- 0.05) V.
START ADJUSTING.
PRESS ANY KEY.
```

↓

①

↓

Set the voltage of PG0551-1 to 5.65V±0.05V

↓

Press any key, and the display changes as follows.

↓

```
<< SETUP OF ODC ADJUSTMENT COMPLETED >>
<< ODC ADJUSTMENT STARTED >>
<< ODC ADJUSTMENT COMPLETED >>
PRESS ANY KEY.
```

↓

Press any key to return to VCR ADJ. MENU.

(2) Head Switching Point Adjustment

Note: Be sure to perform this adjustment after replacing the cylinder assembly and VCA circuit board.

Purpose	· To set the switching point of the video heads during playback.
Incompleted Phenomenon	· Vertical jitter occurs. · Switching noise appears across the bottom of the monitor screen.

Equipment/Jig	Test Points Connection Points	Condition	Adjustment Points
·Alignment Tape		·Playback the alignment tape.	

Adjustment Procedure

VCR ADJ. MENU

```
**********************************************
************ VCR ADJUSTMENT ******************
**********************************************
    [1]    ADJUSTMENT OF ODC
    [2]    ADJUSTMENT OF SWITCHING POINT
    [ESC]  RETURN TO MAIN MENU
      Please select [1],[2] or [ESC]
```

↓

Press [2] key to select the ADJUSTMENT OF SWITCHING POINT.

↓

```
<< ADJUSTMENT OF SWITCHING POINT >>
PRESET POSITIONS OF 'CAMERA/OFF/VCR' SWITCH.
'VCR' POSITION.
PRESS ANY KEY.
```

↓

②

↓

```
SET UP OF SW POINT ADJUSTMENT STARTED.
SET UP OF SW POINT ADJUSTMENT COMPLETED.
SW POINT ADJUSTMENT STARTED.
```

↓

```
SW POINT ADJUSTMENT DATA CHECKING.
FINISHED WRITING DATA.
ADJUSTMENT FINISHED.
PRESS ANY KEY.
```

↓

Turn the Power off.

↓

Press any key to return to VCR ADJ. MENU.

8. LUMINANCE/CHROMA CIRCUIT ADJUSTMENT

(1) Comb Filter Adjustment (Fig. 3-2)

Purpose	· To set the characteristic of the comb filter.
Incompleted Phenomenon	· Jamming occurs at the edges. · The chroma S/N deteriorates.

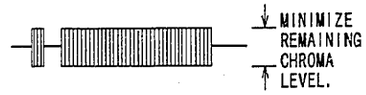
Equipment/JIG	Test Points Connection Points	Condition	Adjustment Points
·Oscilloscope	·TP0203 VCA	·Input the color bar signal. ·STOP mode	*RT0212 VCA (COMB GAIN) *RT0210 VCA (COMB PHASE)
·Color Bar Generater	·Video IN (AV IN)		
·Blank Tape (Nor-8)			

Adjustment Procedure

1) Load the blank tape for normal 8.
2) RT0212, RT0210: Set the chroma components to minimize the residual.

〈Settings of oscilloscope〉
·Trigger with video signal.

Waveforms



(50mV/50μs.div.)

(2) E-E Video Sigan1 Level Adjustment (Fig. 3-2)

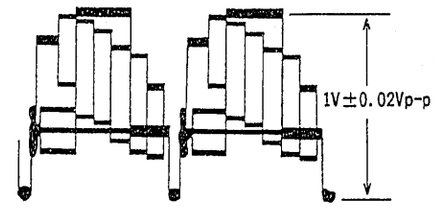
Purpose	· To set the video output level in the E-E mode.
Incompleted Phenomenon	· The picture becomes dark or whitish in the E-E mode.

Equipment/Jig	Test Points Connection Points	Condition	Adjustment Points
·Oscilloscope	·Video Out (AV OUT)	·Input the color bar signal. ·Stop mode	*RT0205 VCA (E-E LEVEL)
·Color Bar Generator	·Video In (AV IN)		
·Blank Tape (Nor-8)			

Adjustment Procedure

1) Load the blank tape for normal 8.
2) RT0205: Set the video output level to 1V±0.02Vp-p.

Waveforms



(200mV/20μs.div.)

(3) White Clip Adjustment (Fig. 3-2)

Purpose	· To set the white clip level.
Incompleted Phenomenon	· No color apperrs in the highly bright subject.

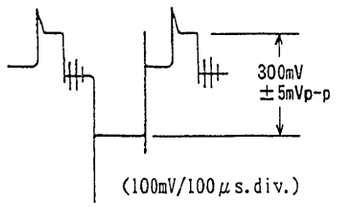
Equipment/Jig	Test Points Connection Points	Condition	Adjustment Points
·Oscilloscope	·TP0205 VCA	·Input the color bar signal. ·Stop mode	*RT0207 VCA (WHITE CLIP)
·Color Bar Generator	·Video IN (AV IN)		
·Blank Tape (Nor-8)			

Adjustment Procedure

1) Load the blank tape for normal 8.
2) RT0207: Set the white clip level to 300mV±5mVp-p.

〈Settings of oscilloscope〉
·Trigger with video signal.

Waveforms



(100mV/100μs.div.)

(4) Carrier Frequency Adjustment (Fig. 3-2)

Purpose	· To set the modulation frequency at the sync tip of the FM modulator to the specified value.
Incompleted Phenomenon	· Black and white are inverted in the picture.

Equipment/Jig	Test Points Connection Points	Condition	Adjustment Points
·Oscilloscope	·TP0101 VCA	·Input the white (100%) signal. ·Stop mode.	*RT0203 VCA (Fo ADJ) *RT0202 VCA (HB Fo ADJ)
·Color Bar Generator	·Video In (AV IN)		
·Blank Tapes (Nor-8,Hi-8)			

Adjustment Procedure

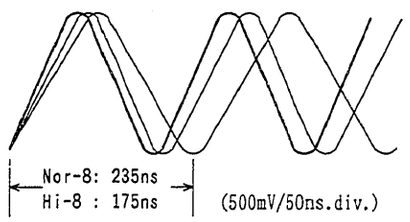
1) Load the blank tape for normal 8.
2) RT0203: Set the period of the widest pulse is 235ns ± 3ns.

[Hi-8 Model Only]

3) Load the blank tape for Hi-8.
4) RT0202: Set the period of the widest pulse is 175ns ± 3ns.

〈Setting of oscilloscope〉
·Trigger the osilloscope

Waveforms



(5) Deviation Adjustment (Fig. 3-2)

Purpose	· To set the modulation frequency at the white peak of the FM modulator to the specified value.
Incompleted Phenomenon	· The picture becomes dark or whitish during recording and playback.

Equipment/Jig	Test Points Connection Points	Condition	Adjustment Points
·Oscilloscope	·TP0101 VCA	·Input the white (100%) signal. ·Stop mode.	*RT0215 VCA (DEVIATION) *RT0214 VCA (HB DEVIATION)
·Color Bar Generator	·Video In (AV IN)		
·Blank Tapes (Nor8,Hi-8)			

Adjustment Procedure

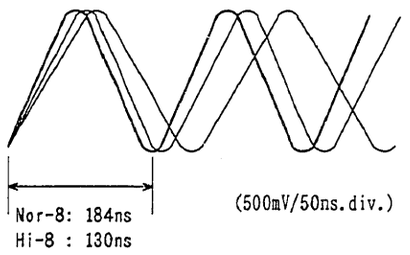
1) Load the blank tape for normal 8.
2) RT0215: Set the period of the narrowest pulse is 184ns ± 2ns.

[Hi-8 Model Only]

3) Load the blank tape for Hi-8.
4) RT0214: Set the period of the narrowest pulse is 130ns ± 2ns.

〈Setting of oscilloscope〉
·Trigger the osilloscope

Waveforms



(6) Record Luminance Level Adjustment (Fig. 3-2)

Purpose	· To set the luminance signal to the specified value.
Incompleted Phenomenon	· The luminance S/Ns diteriorate. · Cross-beats appear on the monitor screen. · Black and white are inverted in picture.

Equipment/Jig	Test Points Connection Points	Condition	Adjustment Points
·Oscilloscope	·CH-1: Video Out (AV OUT) CH-2: TP0101(REC Y) VCA	·Input the color bar signal.	*RT0103 VCA (REC LUMA LEVEL)
·Color Bar Generator	·Video In (AV IN)		
·ATF-R Jig (SW3:ON)	·PG0601 VCA		
·Blank Tape (Nor-8,Hi-8)			

Adjustment Procedure

[Normal 8 Model Only]
1) Load the blank tape for Normal 8.

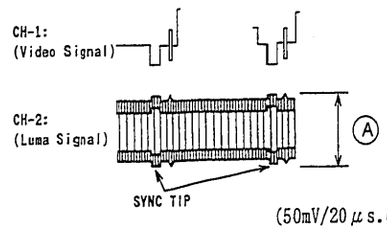
[Hi-8 Model Only]
1) Load the blank tape for Hi-8.
2) Connect the ATF-R jig to PG0601 and turn the power off.
3) Set the camera/recorder to the test mode by the following procedure.
[Procedure to set to the test mode]
①Remove the power supply from the camera/recorder.
②Set the CAMERA/OFF/VCR switch to CAMERA position.
③Check that the ATF-R jig (SW1:OFF,SW3:ON) is connected and then press the playback button and hold it , then supply the power again to the camera/recorder.
4) Set the unit to the loading state.

[Normal 8 Model Only]
5) RT0103: Set the sync tip section in record luminance signal is 390mV ± 5mVp-p.

[Hi-8 Model Only]
5) RT0103: Set the sync tip section in record luminance signal is 520mV ± 5mVp-p.

〈Setting of oscilloscope〉
·Trigger with video signal.

Waveforms



(7) Playback Luminance Level Adjustment (Fig. 3-2)
Note: Perform this adjustment after completing the record luminance level adjustment.

Purpose	· To set the luminance playback level to the specified value.
Incompleted Phenomenon	· The picture becomes dark or whitish during playback.

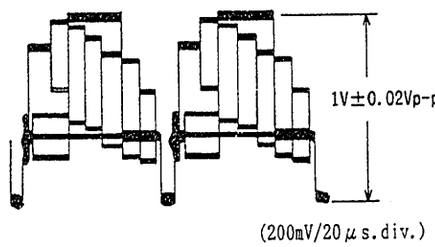
Equipment/Jig	Test Points Connection Points	Condition	Adjustment Points
·Oscilloscope	·Video Out (AV OUT)	·Record color bar signal and play it back with same VCR.	*RT0209 VCA (PB LEVEL) *RT0217 VCA (HB PB LEVEL)
·Blank Tapes (Nor-8,Hi-8)			
·Color Bar Generator			

Adjustment Procedure

1) Playback the Nor-8 tape.
2) RT0209: Set the playback luminance level to 1V±0.02Vp-p.

[Hi-8 Model Only]
1) Playback the Hi-8 tape.
2) RT0217: Set the playback luminance level to 1V±0.02Vp-p.

Waveforms



9. AV TRANSMITTER CIRCUIT ADJUSTMENT [For Type521]

(1) FM Carrier ADJUSTMENT

Purpose	• To set the frequencies of the audio and video FM signals in the specified values. • To set the deviation of the video FM signal to the specified value.
Incompleted Phenomenon	• The picture is distorted. • No sound is output or the level is low. • The sound balance between the left and right channels deteriorates.

Equipment/Jig	Test Points Connection Points	Condition	Adjustment Points
·Frequency Counter	·TP0002 (AUD L fo) VCA ·TP0002 (AUD R fo) VCA ·TP0001 (VID fo) VCA	·Input the white (100%) signal. ·VCR MODE (STOP)	·RT0001 (AUD L fo) VCA ·RT0002 (AUD R fo) VCA ·RT0003 (VID fo) VCA ·RT0004 (VID Dev) VCA ·RT0005 (MIX FM) VCA
·DVM	·PG0001-2 (MIX FM) VCA		
·Oscilloscope	·VIDEO OUT (VID Dev)		
·Color Bar Generator	·VIDEO IN (AV IN)		

Adjustment Procedure

《AUD L fo》
1) RT0001: The frequency counter reads 2.28MHz±10kHz at TP0002.

《AUD R fo》
1) RT0002: The frequency counter reads 2.81MHz±10kHz at TP0002.

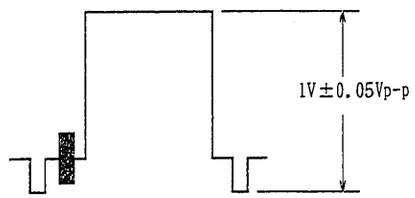
《VID fo》
1) RT0003: The frequency caunter reads 11.5MHz±50kHz at TP0001.

《VID Dev》
1) RT0004: Set the video output level to 1V±0.05Vp-p.

《MIX FM》
1) RT0005: The DVM reads 980mV±10mV at PG0001-2.

<Setting of oscilloscope>
·Trigger the oscilloscope internally.

Waveforms



4. ERROR MESSAGES

1. Camera Electric Volume and Digital Adjustments

Error Message	Countermeasure
ERROR OCCURRED. IRIS TROUBLE PRESS ANY KEY	• Check whether or not power is supplied. • Check the values of the iris drive circuit. • Defective soldering, damage to pattern, etc. in the above circuit • Check the iris block and replace it if necessary.
ERROR OCCURRED ON dax ADJUSTMENT PRESS ANY KEY	• Check the values in the hall amp circuit. • Defective soldering, damage to pattern, etc. in the above circuit.
D RANGE OVER. ERROR ON dax ADJUSTMENT PRESS ANY KEY	• Check the values in the hall amp circuit. • Defective soldering, damage to pattern, etc. in the above circuit.
ERROR OCCURRED ON da0 and da1 ADJUSTMENT PRESS ANY KEY	• Check the values in the hall amp circuit and its peripheral circuits. • Defective soldering, damage to pattern, etc. in the above circuits.
FILE NOT FOUND !!!! PRESS ANY KEY	• The adjustment program (file) cannot be found. • Check the adjustment floppy disk and replace it if necessary.
FILE OPEN ERROR !!!! PRESS ANY KEY	• The adjustment program (file) does not start. • Check the adjustment floppy disk and replace it if necessary.
ERROR OCCURRED ON C DUTY ADJUSTMENT PRESS ANY KEY	• Check the values of the iris drive circuit. • Defective soldering, damage to pattern, etc. in the above circuit.
ERROR OCCURRED ON FDET ADJUSTMENT PRESS ANY KEY	• Supply power again and re-adjust. • Check the values in the hall amp circuit. • Defective soldering, damage to pattern, etc. in the above circuit.
ERROR OCCURRED. ZOOM DOES NOT WORK PRESS ANY KEY	• Supply power again and re-adjust.
TOO BRIGHT PRESS ANY KEY	• The subject is too bright. • Move the camera further away from the light box.
TOO DARK PRESS ANY KEY	• The subject is too dark. • Check the light box. • Move the camera closer to the light box.
D RANGE OVER ERROR ON HALL AMP IRIS CANNOT OPEN ANY MORE PRESS ANY KEY	• Supply power again and re-adjust. • The subject is too dark. • Check the light box. • Move the camera closer to the light box. • Check the values in the hall amp circuit. • Defective soldering, damage to pattern, etc. in the above circuit.

Error Message	Countermeasure
STAURATION ERROR. TOO BRIGHT PRESS ANY KEY	• The subject is too bright. • Move the camera further away from the light box.
CAN'T ADJUST WHITE BALANCE PLEASE RETRY PRESS ANY KEY	• The subject is too bright or too dark. • Check the light box. • Move the camera closer to or away from the light box. • Supply power again and re-adjust.

2. Autofocus Adjustment

Error Message	Countermeasure
TIME OUT ERROR ON FOCUS	• Check the conditions of subject. • If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. • Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.
TIME OUT ERROR ON ZOOM	• If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. • Refer to (2) of TROUBLESHOOTING OF AUTOFOCUS.
TIME OUT ERROR ON AF STEP	• Check the conditions of subject. • If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. • Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.
AF LIMIT OVER	• Check the conditions of subject. • If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. • Refer to (2) of TROUBLESHOOTING OF AUTOFOCUS.
AF ERROR	• If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. • Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.
TOO DARK	• Insufficient lighting. Check the subject.

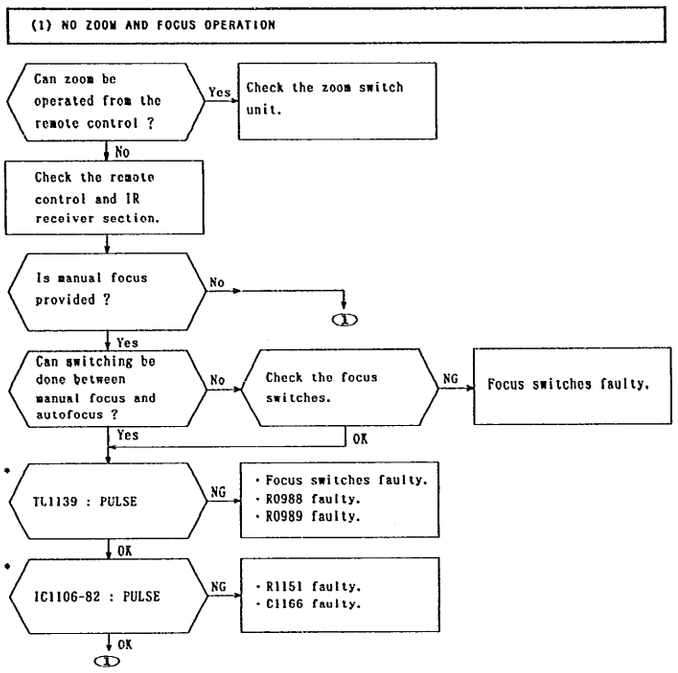
3. Spot Noise Adjustment

Error Message	Countermeasure
ERROR!! SPOT NOISE COMPENSATION IS STOPPED BY INITIAL DATA. PLEASE CHECK THE EEPROM. PRESS ANY KEY.	• Spot noise compensation is inhibited by the data in the EEPROM • Turn the power on again. • Data in the EEPROM is defective. (Initialize it.) • Check the EEPROM, and if necessary, replace it.
ERROR!! THRESHOLD DATA ERROR. PLEASE CHECK THE EEPROM. PRESS ANY KEY.	• Turn the power on again. • Data in the EEPROM is defective. (Initialize it.) • Check the EEPROM, and if necessary, replace it.

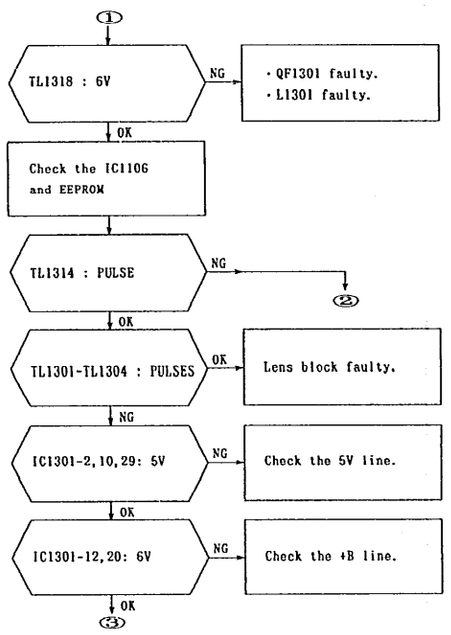
Error Message	Countermeasure
ERROR!! THE SPOT NOISE IS TOO MANY. CAN'T COMPENSATE ANY MORE. PRESS ANY KEY.	• The amount of spot noise that can be compensated reaches the limit. • Turn the power on again. • Check the CCD image sensor, and if necessary, replace it.

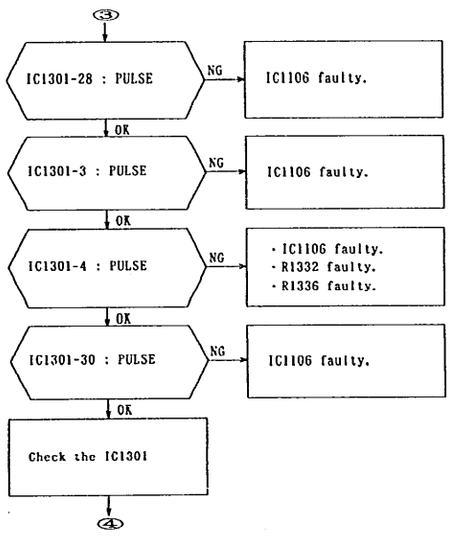
4. VCR Adjustment

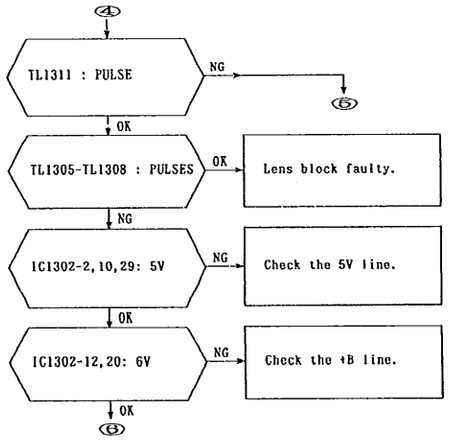
Error Message	Countermeasure
ERROR : SWP_TEST>DAT FILE NOT FOUND !	• The adjustment program cannot be found. • Check the adjustment floppy disk and replace it if necessary.
ERROR : INVALID MODEL PRESS ANY KEY	• A wrong model has been selected. • The adjustment program cannot be found. • Check the adjustment floppy disk and replace it if necessary.
THIS MODEL NEED NOT BE ADJUSTED PRESS ANY KEY	• A wrong model has been selected. • A product that needs analog adjustment is connected.
ADJUSTMENT INCOMPLETED PRESS ANY KEY	• The value set by adjustment defective. • Re-adjust. • Check cylinder. • Check the alignment tape. • Check whether or not the usual operation is done correctly
RETRY ADJUSTING. PRESS ANY KEY	• Supply power again and re-adjust.
CAMERA IS NOT READY	• Check whether or not power is supplied.
ERROR OCCURRED CAN'T PLAY BACK PRESS ANY KEY	• No playback video. • Check the playback signal.
ERROR OCCURRED NO V.SYNC FOUND PRESS ANY KEY	• Vertical sync loss. • Check the vertical sync signal.
INVALID MODEL PRESS ANY KEY	• A wrong model has been selected. • The adjustment program cannot be found. • Check the adjustment floppy disk and replace it if necessary.
ERROR OCCURRED CAN'T RECORD PRESS ANY KEY	• No video recording. • Check the recording signal.

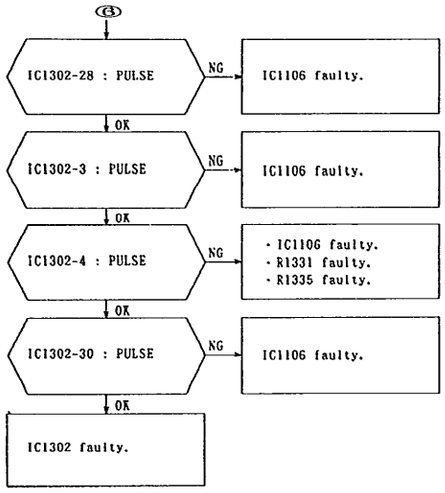


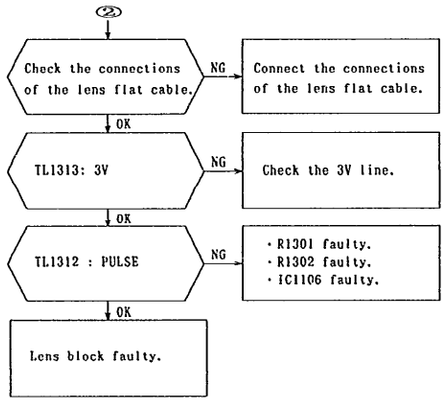
Note: Check the items marked • by pressing the manual focus FAR and NEAR switches alternately.

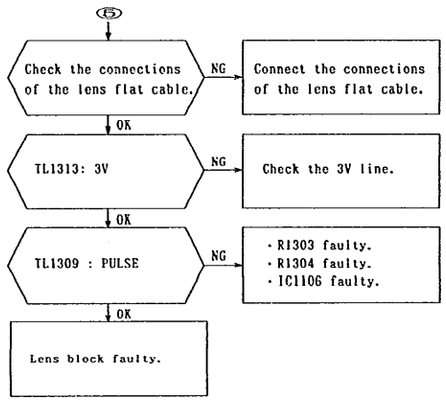


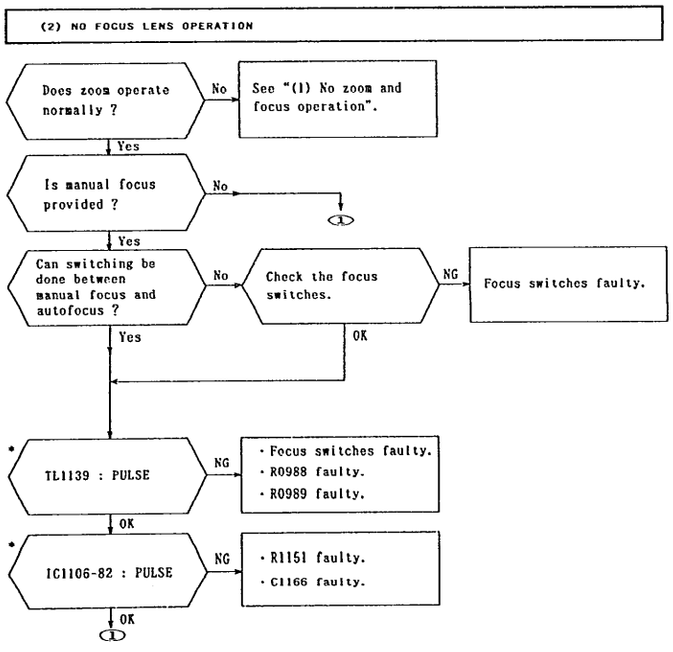


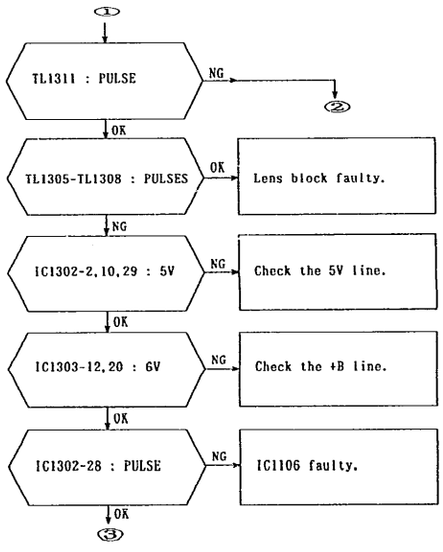




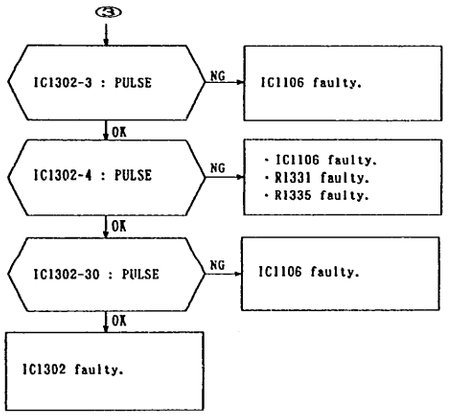


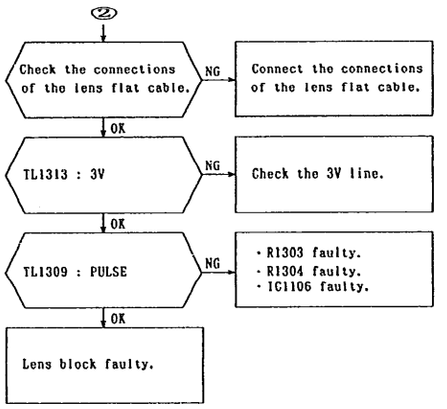


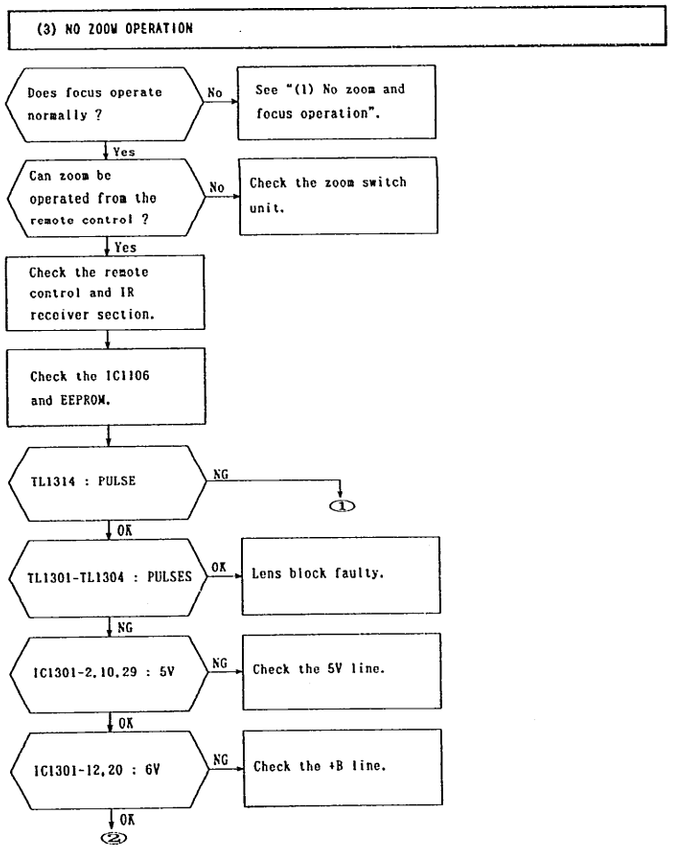


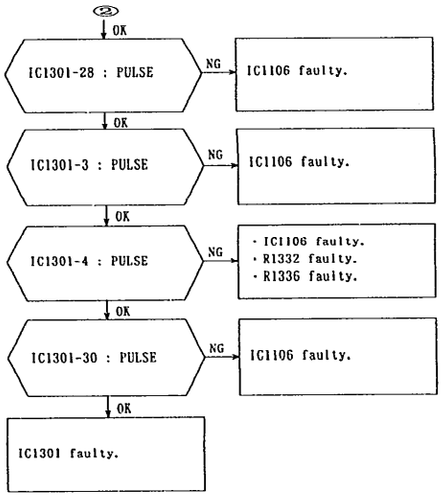


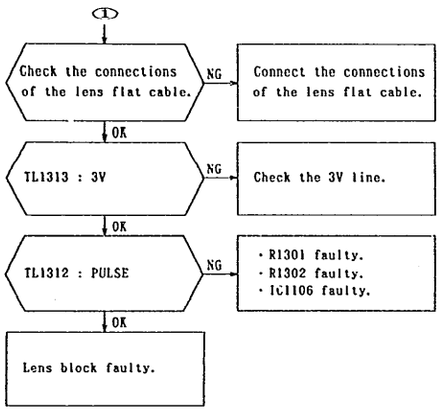
Note: Check the items marked * by pressing the manual focus FAR and NEAR switches alternately.

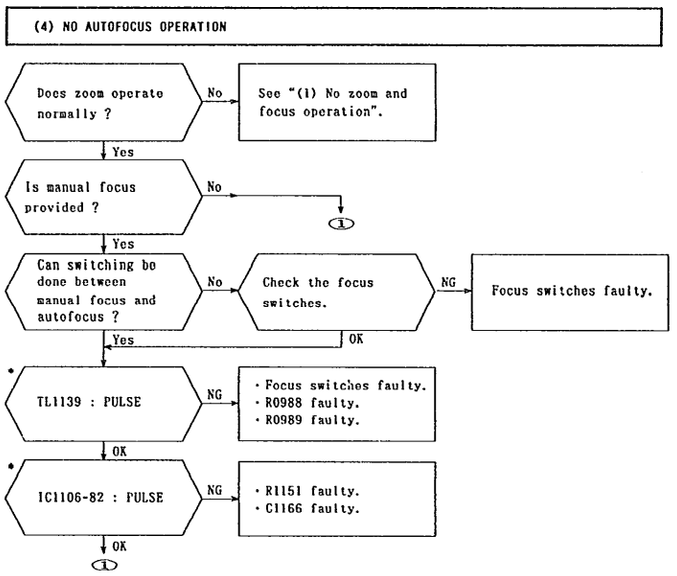

③
IC1302-3 : PULSE
NG
IC1106 faulty.
OK
IC1302-4 : PULSE
NG
· IC1106 faulty.
· R1331 faulty.
· R1335 faulty.
OK
IC1302-30 : PULSE
NG
IC1106 faulty.
OK
IC1302 faulty.


②
Check the connections of the lens flat cable.
NG
Connect the connections of the lens flat cable.
OK
TL1313 : 3V
NG
Check the 3V line.
OK
TL1309 : PULSE
NG
· R1303 faulty.
· R1304 faulty.
· IC1106 faulty.
OK
Lens block faulty.

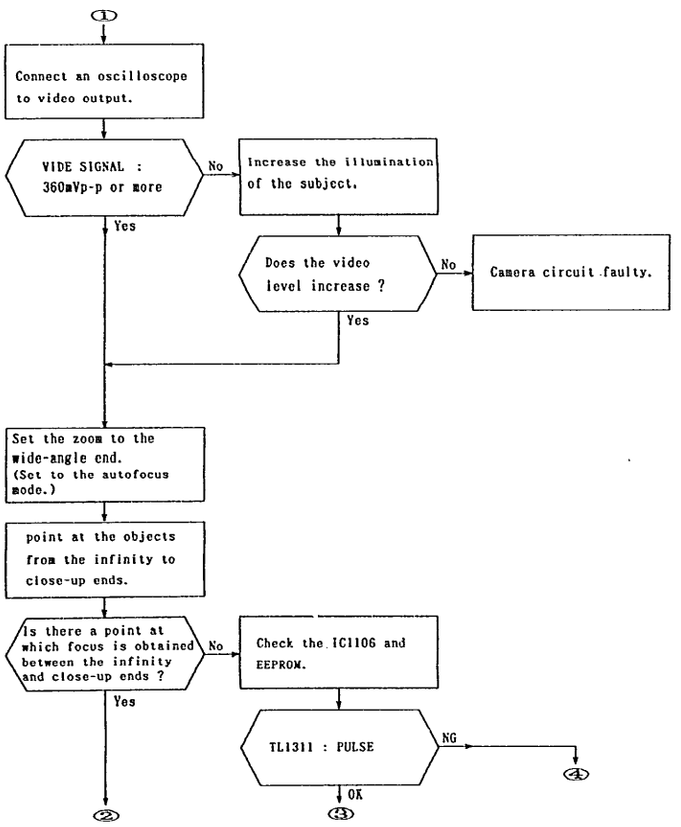

(3) NO ZOOW OPERATION
Does focus operate normally ?
No
See "(1) No zoom and focus operation".
Yes
Can zoom be operated from the remote control ?
No
Check the zoom switch unit.
Yes
Check the remote control and IR receiver section.
Check the IC1106 and EEPROM.
TL1314 : PULSE
NG
①
OK
TL1301-TL1304 : PULSES
OK
Lens block faulty.
NG
IC1301-2,10,29 : 5V
NG
Check the 5V line.
OK
IC1301-12,20 : 6V
NG
Check the +B line.
OK
②

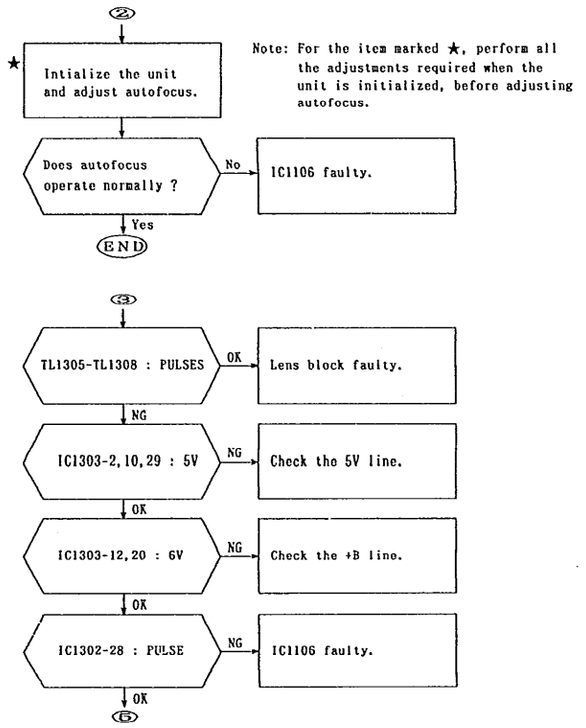

②
OK
IC1301-28 : PULSE
NG
IC1106 faulty.
OK
IC1301-3 : PULSE
NG
IC1106 faulty.
OK
IC1301-4 : PULSE
NG
· IC1106 faulty.
· R1332 faulty.
· R1336 faulty.
OK
IC1301-30 : PULSE
NG
IC1106 faulty.
OK
IC1301 faulty.



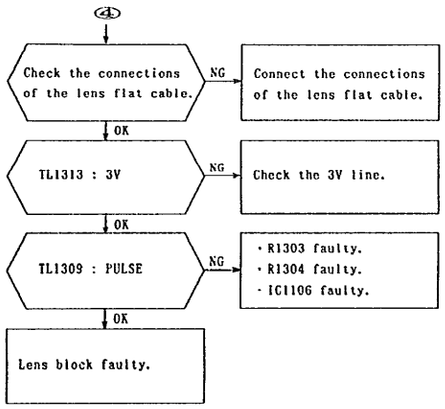


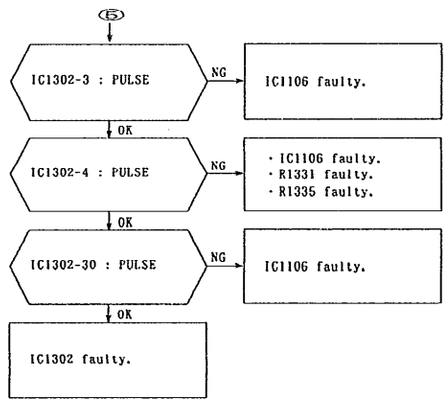
Note: Check the items marked * by pressing the manual focus FAR and NEAR switches alternately.

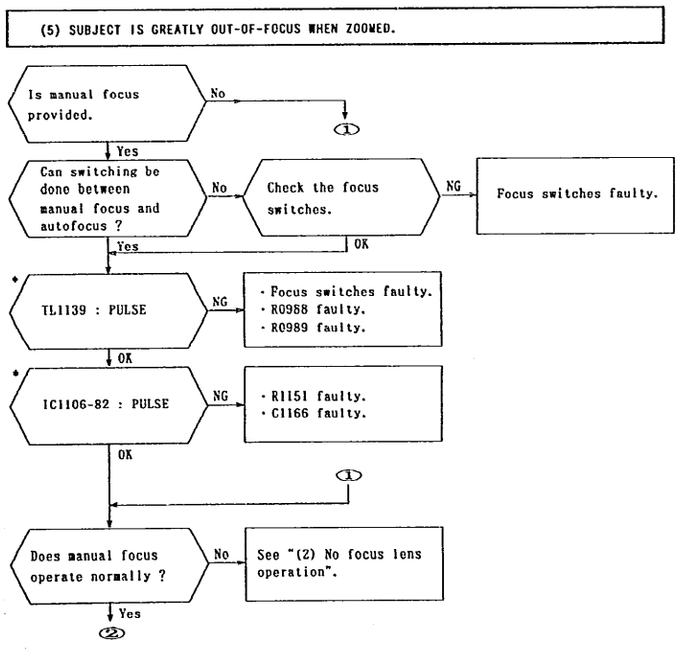




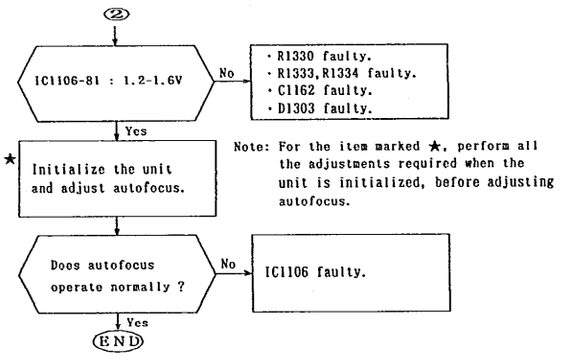
Note: For the item marked ★, perform all the adjustments required when the unit is initialized, before adjusting autofocus.







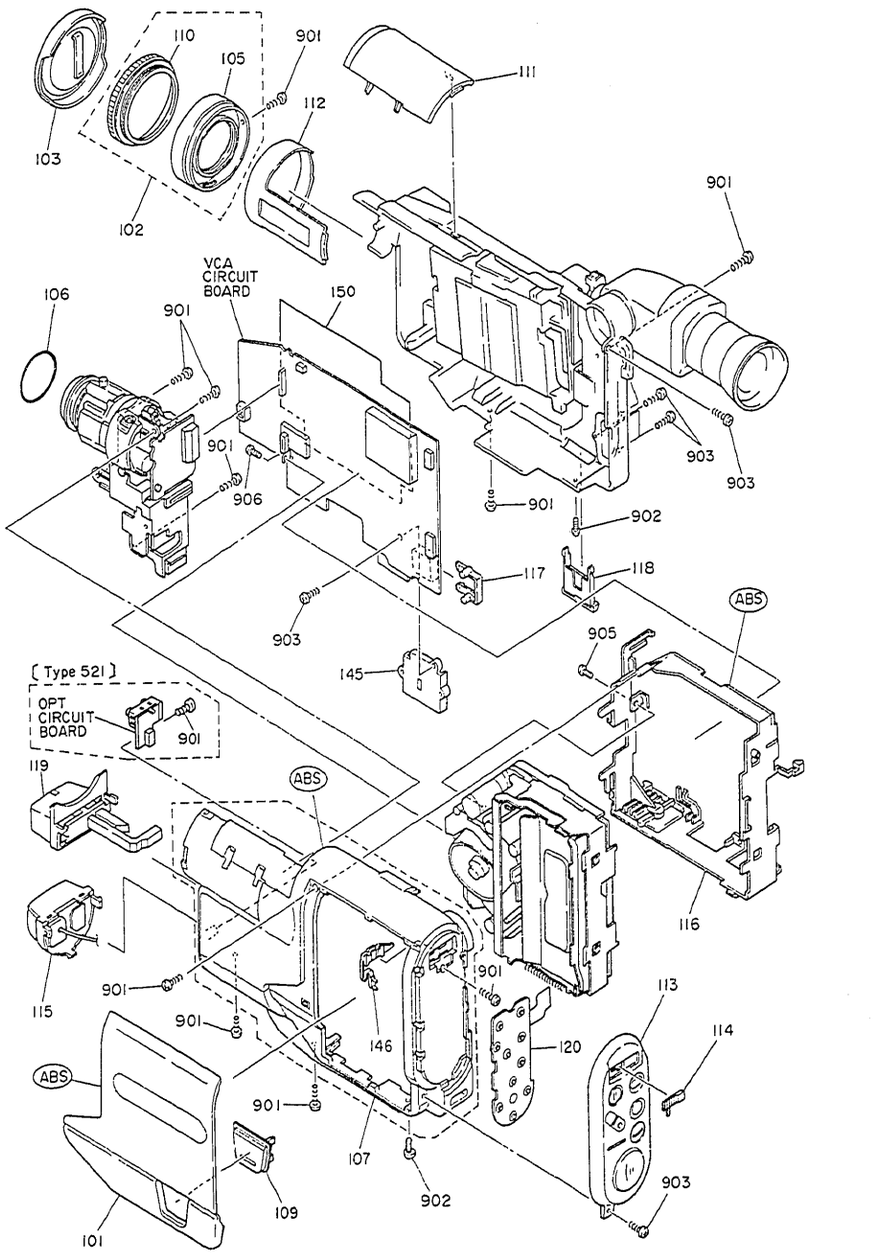
Note: Check the items marked • by pressing the manual focus FAR and NEAR switches alternately.



Note: For the item marked ★, perform all the adjustments required when the unit is initialized, before adjusting autofocus.

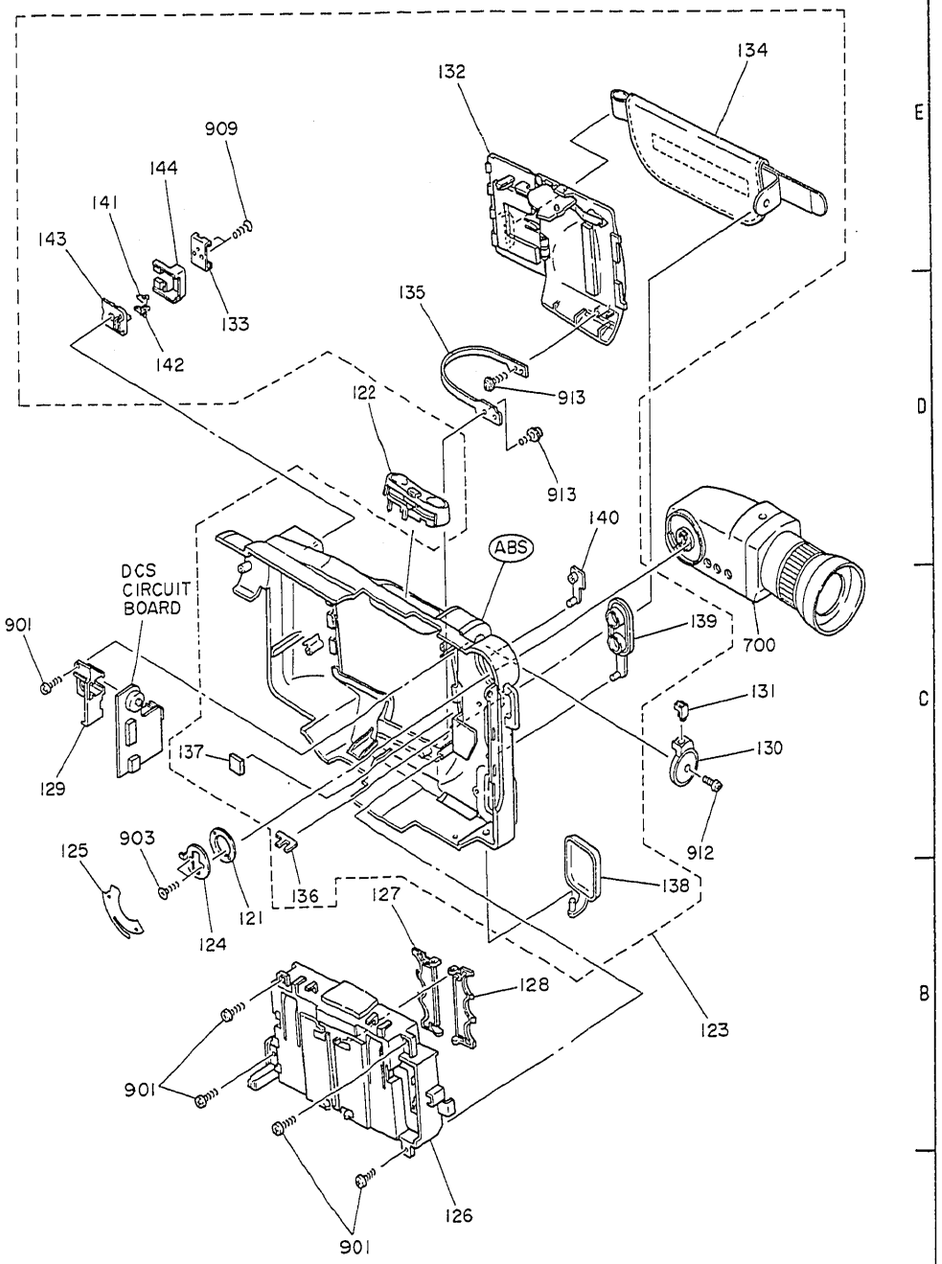
CHAPTER 4 EXPLODED VIEWS

1. CABINET SECTION (I)



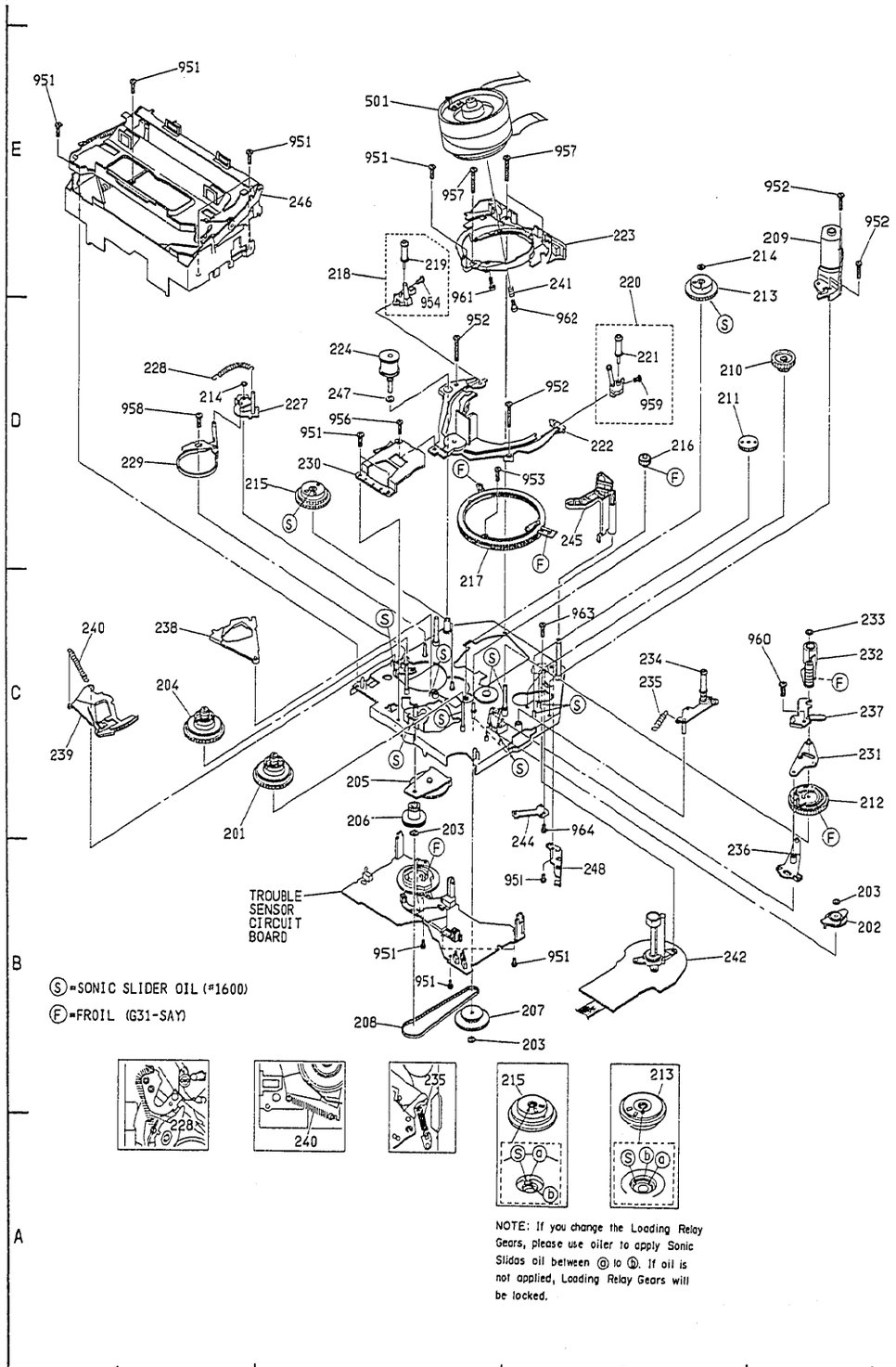
NOTE: THE SYNTHETIC RESIN MEMBERS THAT CAN BE DISMANTLED ARE SHOWN BY ABBREVIATIONS USING LETTERS.

2. CABINET SECTION (II)

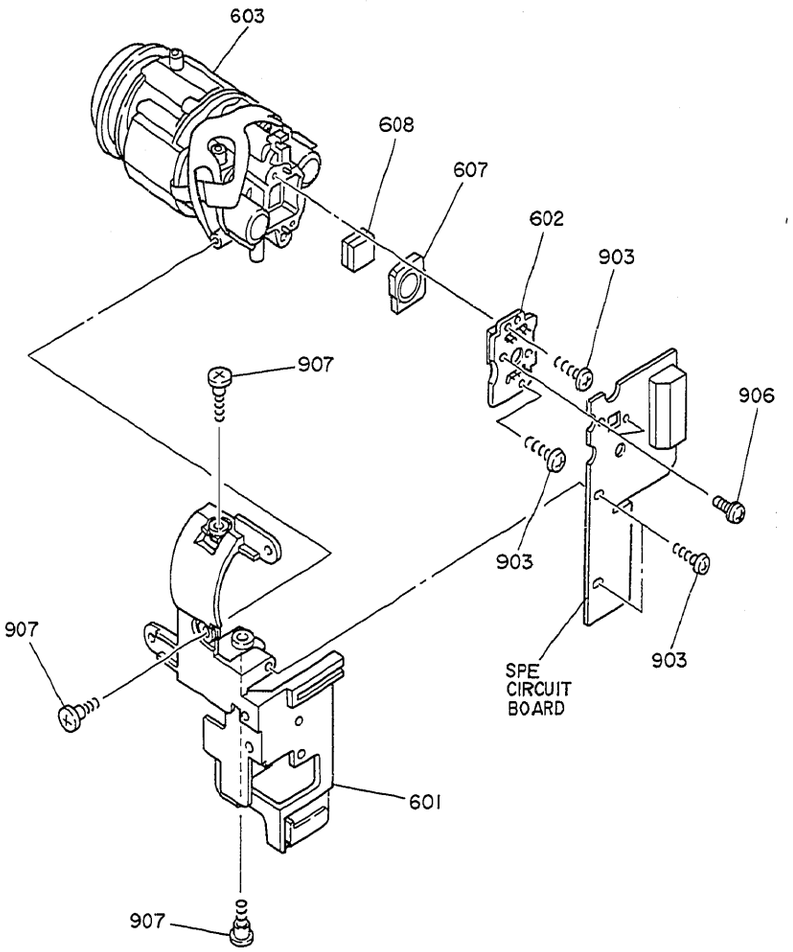


NOTE: THE SYNTHETIC RESIN MEMBERS THAT CAN BE DISMANTLED ARE SHOWN BY ABBREVIATIONS USING LETTERS.

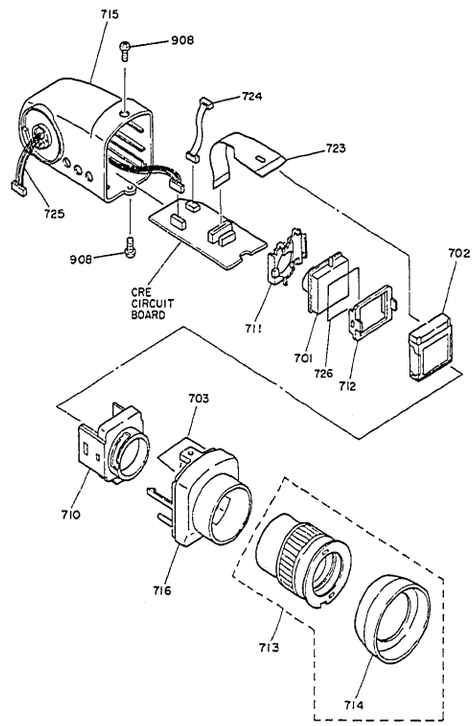
3. CHASSIS SECTION



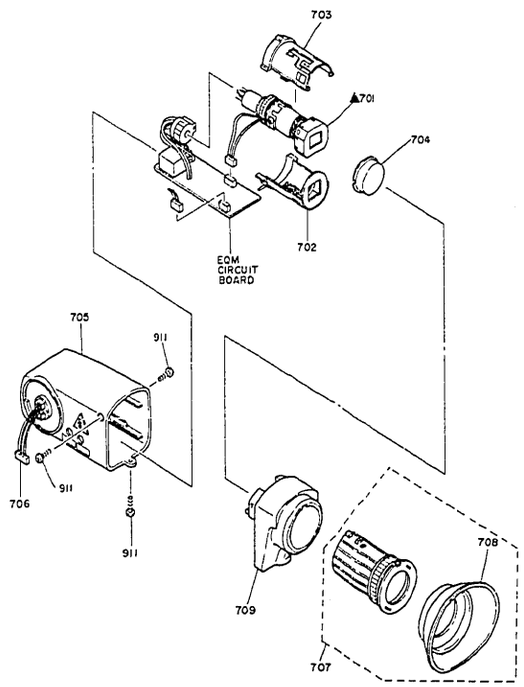
4. CAMERA BLOCK SECTION



5. ELECTRONIC VIEWFINDER(LCD EVF) SECTION



6. ELECTRONIC VIEWFINDER(CRT EVF) SECTION



CHAPTER 5 REPLACEMENT PARTS LIST

1. MECHANICAL PARTS LIST

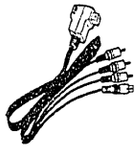
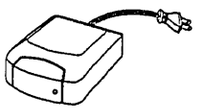
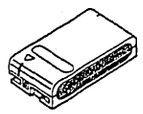
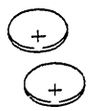
Note: This replacement parts list applies to the following model.
Applicable model: VM-E520A/E521A(C)

SYMBOL-NO	P-NO	DESCRIPTION	
		MECHANISM SECTION	
101	QD13913	LID, CASSETTE	(TYPE521)
101	QD13914	LID, CASSETTE	(TYPE520)
102	QX10823	RING, LENS	
103	4799701	CAP, FOOD	
105	QX10833	RING, LENS	
106	NX11242	RING	
107	QD13442	CASE, SIDE(L)	
109	PC11052	BUTTON, LID	
110	QX10177	HOOD, LENS	
111	QD11734	COVER, TOP	
112	QD11723	COVER, LENS	
113	QD11861	COVER, SWITCH	
114	PC11061	KNOB, EJECT	
115	GH10181	MICROPHONE	
116	NT10281	FRAME, MECHANISM	
117	NJ10411	HOLDER	
118	QX10813	CASE, BATTERY	
119	QD11701	WINDOW, IR	(TYPE521)
119	QD13121	WINDOW, IR	
120	FH10192	SWITCH ASSY	
121	4899872	SPRING	
122	5604851	SWITCH, T/W	
123	QD11627	CASE, SIDE(R)	
124	4826123	STOPPER	
125	4345032	SHEET, EVF	
126	QD11683	CASE, BATTERY	
127	NJ10471	HOLDER, BATTERY (R)	
128	NJ10401	HOLDER, BATTERY (L)	
129	NJ10421	HOLDER, JACK	
130	PC11081	BOTTON, POWER	
131	4752651	KNOB, LOCK	
132	QD11971	CAP, BATTERY	
133	QX11041	SHOE	
134	PV10171	STRAP, HAND	
135	NX11531	HINGE	
136	MN10831	SHEET	
137	MU10651	CUSHION	
138	QD11651	COVER, TERMINAL	
139	QD11661	COVER, JACK	
140	QD11641	COVER, DC	
141	KL10491	TERMINAL(L)	
142	KL10501	TERMINAL(R)	
143	NJ10541	HOLDER, TERMINAL	
144	QX11051	COVER, TERMINAL	
145	NX11261	HOLDER, BATTERY	(TYPE520)
146	NJ10431	HOLDER, EJECT	
150	QL13002	SHEET, BATTERY	
201	6404062	REEL DISK, TAKE-UP	
202	6406114	GEAR	
203	7787733	WASHER	
204	6404073	REEL DISK, SUPPLY	
205	6401644	GEAR, IDLER	
206	6406211	GEAR	
207	6406034	GEAR, PULLEY	
208	6358471	BELT	
209	KX10522	LOADING MOTOR BLOCK	
210	6376312	GEAR, DRIVE	
211	6406082	GEAR	
212	6406242	GEAR	
213	6405834	GEAR (R)	
214	7787731	WASHER	
215	6405824	GEAR (L)	
216	6406131	GEAR	
217	4588464	RING, LOADING	
218	4589354	BAS, GUIDE ROLLER(I)	
219	KX10171	GUIDE ROLLER	
220	4589366	BASE, GUIDE ROLLER(O)	
221	4588908	ROLLER, GUIDE	(TYPE520)
221	KX11161	GUIDE ROLLER	(TYPE521)
222	4587796	PLATE	
223	KX10534	BASE, CYLINDER	
224	6406156	ROLLER, IMPEDANCE	
227	4589012	ARM, TENSION	
228	6554231	SPRING	
229	4588553	BAND, TENSION	
230	6408832	COVER, IDLER	
231	NA10601	PLATE	
232	4588294	ARM, PRESSURE ROLLER	
233	7787571	WASHER	
234	4588702	ARM	
235	6554201	SPRING	
236	KX10731	LEVER	
237	4588532	SPRING	
238	4588429	PLATE	
239	4588353	BRAKE	
240	6554221	SPRING	
241	6554214	SPRING	
242	GP10191	MOTOR, CAPSTAN	
244	5794021	BRUSH	
245	4588995	COVER	
246	KX10761	CASSETTE HOLDER ASSY	
247	7789314	WASHER	
248	4827262	BRACKET	
501	HX10251	CYLINDER ASSY (CY-53CN)	
601	NT10302	FRAME, LENS	
602	UE11256	CCD IMAGE SENSOR ASSY	
603	KQ10433	LENS ASSY	
607	NX11251	RUBBER	
608	DT10141	CRYSTAL	
700	UX10461	EVF ASSY	
701	CS10321	MODULE HTS9554	
702	DB10161	LCD	
703	MN11221	SPACER	
710	QD10584	HOLDER, LCD	
711	QD10574	COVER LIGHT	
712	QD10612	PIECE	
713	4717041	LENS, EVF	(TYPE520)
713	4717043	CASE, ADJUST	(TYPE521)
714	4798771	CAP, EYE	(TYPE520)
714	QX11981	CAP, EYE	(TYPE521)
715	QD11787	CASE, EVF	
716	QD12172	CASE, EVF	
723	JD10211	FLEXIBLE CONNECTOR	
724	5846771	CONNECTOR	
725	5844972	CONNECTOR	
726	MU10711	SHEET	
901	7775946	SCREW (2X6)	
902	7775963	SCREW(2X3)	
903	7775945	SCREW(2X5)	
905	7773891	SCREW	
906	8650103	SCREW(2X3)	
907	MJ10221	SCREW	
908	8700968	SCREW(1.7X3.0)	
909	8639106	SCREW(2X6)	
912	8700970	SCREW(1.7X4.0)	
913	MJ10311	SCREW (M2X4.5)	
951	8712024	PAN HEAD SCREW-1.4MMDX3MM	

SYMBOL-NO	P-NO	DESCRIPTION
952	8700272	SCREW(1.7X5)
953	7775921	SCREW(1.4X2)
954	8714004	SCREW(1.4X2.5)
956	8619065	SCREW(1.7X6)
957	8700976	SCREW(1.7X8.0)
958	7770791	SCREW
959	8712904	SCREW(1.4X2.0)
960	8619063	SCREW(1.7X3)
961	8711105	SCREW(2X5)
962	7785886	SCREW
963	8700264	1.7X2 SCREW
964	8741103	SCREW(2X3)

SYMBOL-NO	P-NO	DESCRIPTION
		ACCESSORIES SECTION
⚠802	TS11742	AC ADAPTOR (VM-AC85A)
803	EV10411	CORD,PLUG
804	EW10941	CORD
805	5616582	REMOTE HAND SET (VM-RM70A) (TYPE521)
805	HL10421	REMOTE HAND SET (VT-RME55A) (TYPE520)
807	TS11791	SHOULDER STRAP
808	4798221	STRING,CAP
⚠809	TS12312	INFARARED UNIT (VM-IR20A) (TYPE521)

ACCESSORIES

⚠AC ADAPTOR/CHARGER	DC CORD	AV OUTPUT CORD (For Normal 8 MODEL)	AV OUTPUT CORD (For Hi-8 MODEL)
 [VM-AC85A]			
REMOTE CONTROLLER	REMOTE CONTROLLER	SHOULDER STRAP	STRING
 [VM-RME55A]	 [VM-RM70A]		
AV OPTICAL WIRELESS RECEIVER (For Type 521)	⚠	⚠	
 [VM-IR20A]			WARNING : Keep this battery away from children. If swallowed, consult a physician immediately for emergency treatment.

2. ELECTRICAL PARTS LIST

Note: This replacement parts list applies to the following model.
Applicable model: VM-E520A/E521A(C)

SYMBOL-NO	P-NO	DESCRIPTION	
		VCR & CAMERA SECTION	
C0001	0806157	ELECTROLYTIC 22UF 6.3V	(521)
C0002	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	(521)
C0003	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	(521)
C0004	0806153	ELECTROLYTIC 10UF 16V	(521)
C0005	0893062	CERAMIC CHIP 1UF+80-20% 16V	(521)
C0006	0806153	ELECTROLYTIC 10UF 16V	(521)
C0007	0893166	CERAMIC CHIP 220PF+-5% 50V	(521)
C0008	0893004	CERAMIC CHIP 0.047UF+-10% 16V	(521)
C0009	0806133	ELECTROLYTIC 10UF 6.3V	(521)
C0010	0893062	CERAMIC CHIP 1UF+80-20% 16V	(521)
C0012	0893062	CERAMIC CHIP 1UF+80-20% 16V	(521)
C0013	0893166	CERAMIC CHIP 220PF+-5% 50V	(521)
C0014	0893004	CERAMIC CHIP 0.047UF+-10% 16V	(521)
C0015	0806133	ELECTROLYTIC 10UF 6.3V	(521)
C0016	0893062	CERAMIC CHIP 1UF+80-20% 16V	(521)
C0017	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	(521)
C0018	0893062	CERAMIC CHIP 1UF+80-20% 16V	(521)
C0019	0202305	CERAMIC CHIP 510PF+-5% 50V	(521)
C0020	0806133	ELECTROLYTIC 10UF 6.3V	(521)
C0022	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	(521)
C0023	0893202	CERAMIC CHIP 330PF+-10% 50V	(521)
C0024	0893208	CERAMIC CHIP 1000PF+-10% 50V	(521)
C0025	0893208	CERAMIC CHIP 1000PF+-10% 50V	(521)
C0026	0893208	CERAMIC CHIP 1000PF+-10% 50V	(521)
C0028	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	(521)
C0029	0806157	ELECTROLYTIC 22UF 6.3V	(521)
C0051	0893055	CERAMIC CHIP 0.1UF+80-20% 16V	(521)
C0101	0202328	CERAMIC CHIP 1.0UF+80-20% 16V	
C0102	0806174	ELECTROLYTIC 100UF 6.3V	
C0103	0893197	CERAMIC CHIP 0.022UF+-10% 25V	
C0104	0893188	CERAMIC CHIP 0.047UF+-10% 16V	
C0105	0893193	CERAMIC CHIP 0.01UF+-10% 25V	
C0106	0893193	CERAMIC CHIP 0.01UF+-10% 25V	
C0108	0893188	CERAMIC CHIP 0.047UF+-10% 16V	
C0109	0893197	CERAMIC CHIP 0.022UF+-10% 25V	
C0110	0893197	CERAMIC CHIP 0.022UF+-10% 25V	
C0111	0893008	CERAMIC CHIP 0.1UF +-10% 16V	
C0112	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	
C0113	0806001	ELECTROLYTIC 0.1UF 35V	
C0114	0893193	CERAMIC CHIP 0.01UF+-10% 25V	
C0115	0893193	CERAMIC CHIP 0.01UF+-10% 25V	
C0116	0893208	CERAMIC CHIP 1000PF+-10% 50V	
C0117	0893208	CERAMIC CHIP 1000PF+-10% 50V	
C0118	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	
C0119	0893119	CERAMIC CHIP 33PF+-5% 50V	
C0120	0893122	CERAMIC CHIP 47PF+-5% 50V	
C0121	0893121	CERAMIC CHIP 39PF+-5% 50V	
C0130	0893208	CERAMIC CHIP 1000PF+-10% 50V	
C0131	0806168	ELECTROLYTIC 47UF 6.3V	
C0132	0893014	CERAMIC CHIP 0.01UF+-10% 25V	
C0134	0893123	CERAMIC CHIP 56PF+-5% 50V	
C0136	0893118	CERAMIC CHIP 27PF+-5% 50V	
C0137	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	
C0140	0893193	CERAMIC CHIP 0.01UF+-10% 25V	
C0141	0893133	CERAMIC CHIP 330PF+-5% 50V	
C0142	0893123	CERAMIC CHIP 56PF+-5% 50V	
C0143	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	
C0144	0893214	CERAMIC CHIP 2700PF+-10% 50V	
C0145	0893193	CERAMIC CHIP 0.01UF+-10% 25V	
C0146	0893115	CERAMIC CHIP 15PF+-5% 50V	
C0148	0893193	CERAMIC CHIP 0.01UF+-10% 25V	
C0149	0893117	CERAMIC CHIP 22PF+-5% 50V	

SYMBOL-NO	P-NO	DESCRIPTION
C0150	0893114	CERAMIC CHIP 12PF+-5% 50V
C0151	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0152	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0153	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0154	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0155	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0156	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0159	0893109	CERAMIC CHIP 7.0PF 50V
C0163	0806168	ELECTROLYTIC 47UF 6.3V
C0164	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0165	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0168	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0169	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0170	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0171	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0172	0806153	ELECTROLYTIC 10UF 16V
C0173	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0174	0806124	ELECTROLYTIC 10UF 4V
C0175	0893106	CERAMIC CHIP 4.0PF+-0.25% 50V
C0176	0893117	CERAMIC CHIP 22PF+-5% 50V
C0177	0893152	CERAMIC CHIP 18PF+-5% 50V
C0178	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0179	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0180	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0181	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0182	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0183	0806153	ELECTROLYTIC 10UF 16V
C0184	0893055	CERAMIC CHIP 0.1UF+80-20% 16V
C0185	0806023	ELECTROLYTIC 3.3UF 4V
C0187	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0188	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0189	0893161	CERAMIC CHIP 82PF+-5% 50V
C0190	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0191	0893124	CHIP CERAMIC 68PF+-5% 50V
C0204	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0205	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0206	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0207	0893109	CERAMIC CHIP 7.0PF 50V
C0208	0893127	CERAMIC CHIP 120PF+-5% 50V
C0213	0893102	CERAMIC CHIP 1.0PF+-0.25% 50V
C0214	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0215	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0216	0806174	ELECTROLYTIC 100UF 6.3V
C0217	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0218	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0219	0806024	ELECTROLYTIC 3.3UF 6.3V
C0224	0893127	CERAMIC CHIP 120PF+-5% 50V
C0226	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C0227	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0228	0893059	CERAMIC CHIP 0.47UF+80-20% 16V
C0229	0893004	CERAMIC CHIP 0.047UF+-10% 16V
C0230	0893122	CERAMIC CHIP 47PF+-5% 50V
C0231	0806168	ELECTROLYTIC 47UF 6.3V
C0232	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0235	0893124	CHIP CERAMIC 68PF+-5% 50V
C0237	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0238	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0240	0893114	CERAMIC CHIP 12PF+-5% 50V
C0242	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0243	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0244	0806027	ELECTROLYTIC 4.7UF 4V
C0245	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0246	0806124	ELECTROLYTIC 10UF 4V
C0247	0806027	ELECTROLYTIC 4.7UF 4V
C0248	0893115	CERAMIC CHIP 15PF+-5% 50V

SYMBOL-NO	P-NO	DESCRIPTION
C0249	0893119	CERAMIC CHIP 33PF+-5% 50V
C0250	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0251	0806027	ELECTROLYTIC 4.7UF 4V
C0252	0806149	ELECTROLYTIC 4.7UF 25V
C0253	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0254	0806153	ELECTROLYTIC 10UF 16V
C0255	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0256	0893162	CERAMIC CHIP 100PF+-5% 50V
C0257	0806174	ELECTROLYTIC 100UF 6.3V
C0258	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0259	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0260	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0261	0893117	CERAMIC CHIP 22PF+-5% 50V
C0263	0893011	CERAMIC CHIP 0.15UF+-10% 16V
C0264	0893169	CERAMIC CHIP 390PF+-5% 50V
C0265	0893153	CERAMIC CHIP 22PF+-5% 50V
C0270	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0271	0806153	ELECTROLYTIC 10UF 16V
C0273	0806124	ELECTROLYTIC 10UF 4V (TYPE521)
C0275	0806174	ELECTROLYTIC 100UF 6.3V
C0352	0806178	ELECTROLYTIC 220UF 4V
C0353	0806124	ELECTROLYTIC 10UF 4V
C0354	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0357	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0358	0806168	ELECTROLYTIC 47UF 6.3V
C0359	0806027	ELECTROLYTIC 4.7UF 4V
C0360	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0363	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0364	0806124	ELECTROLYTIC 10UF 4V
C0365	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0368	0893131	CERAMIC CHIP 220PF+-5% 50V
C0391	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0392	0893079	CERAMIC DISC 0.01UF+80-20% 50V
C0401L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0402L	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C0403L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0404L	0893213	CERAMIC CHIP 2200PF+-10% 50V
C0405L	0893211	CERAMIC CHIP 1500PF+-10% 50V
C0406L	0806163	ELECTROLYTIC 33UF 10V
C0407L	0806018	ELECTROLYTIC 2.2UF 6.3V
C0408L	0806027	ELECTROLYTIC 4.7UF 4V
C0409L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0410L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0411L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0411R	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0412L	0806117	ELECTROLYTIC 3.3UF 16V
C0413	0806018	ELECTROLYTIC 2.2UF 6.3V
C0415L	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0416	0806027	ELECTROLYTIC 4.7UF 4V
C0417L	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0418L	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0419L	0893216	CERAMIC CHIP 3900PF+-10% 50V
C0420	0806131	CHIP CAPACITOR 2.2UF+-20% 20V
C0421	0893186	CERAMIC CHIP 0.033UF+-10% 16V
C0422	0806153	ELECTROLYTIC 10UF 16V
C0423	0806153	ELECTROLYTIC 10UF 16V
C0424L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0425	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0426	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C0428	0806168	ELECTROLYTIC 47UF 6.3V
C0430L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0431L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0432	0806131	CHIP CAPACITOR 2.2UF+-20% 20V
C0439	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0441L	0202327	CERAMIC CHIP 0.22UF+-10% 16V

SYMBOL-NO	P-NO	DESCRIPTION
C0443	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0445	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0457L	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0458	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0459	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0460	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0461	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0501	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0502	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0503	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0551	0893155	CERAMIC CHIP 33PF+-5% 50V
C0552	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0553	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0555	0209942	CERAMIC CHIP 100PF+-5% 50V
C0556	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0557	0806153	ELECTROLYTIC 10UF 16V
C0558	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0559	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0560	0893202	CERAMIC CHIP 330PF+-10% 50V
C0561	0893165	CERAMIC CHIP 180PF+-5% 50V
C0562	0893203	CERAMIC CHIP 390PF+-10% 50V
C0563	0893158	CERAMIC CHIP 56PF+-5% 50V
C0570	0206671	ELECTROLYTIC 10UF 10V
C0571	0206671	ELECTROLYTIC 10UF 10V
C0573	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0577	0206671	ELECTROLYTIC 10UF 10V
C0579	0206671	ELECTROLYTIC 10UF 10V
C0581	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0582	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0585	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V
C0586	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0588	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V
C0589	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0590	0806157	ELECTROLYTIC 22UF 6.3V
C0591	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0601	0893205	CERAMIC CHIP 560PF+-10% 50V
C0602	0806149	ELECTROLYTIC 4.7UF 25V
C0603	0893115	CERAMIC CHIP 15PF+-5% 50V
C0604	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0605	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0606	0893204	CERAMIC CHIP 470PF+-10% 50V
C0607	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0608	0893204	CERAMIC CHIP 470PF+-10% 50V
C0609	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0610	0806153	ELECTROLYTIC 10UF 16V
C0612	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0613	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0614	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0615	0893205	CERAMIC CHIP 560PF+-10% 50V
C0616	0893115	CERAMIC CHIP 15PF+-5% 50V
C0617	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0618	0893204	CERAMIC CHIP 470PF+-10% 50V
C0619	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0636	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0638	0893226	CERAMIC CHIP 0.15UF+80-20% 16V
C0639	0806153	ELECTROLYTIC 10UF 16V
C0644	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0645	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0646	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0647	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0648	0893211	CERAMIC CHIP 1500PF+-10% 50V
C0649	0893211	CERAMIC CHIP 1500PF+-10% 50V
C0650	0893211	CERAMIC CHIP 1500PF+-10% 50V
C0656	0806153	ELECTROLYTIC 10UF 16V
C0671	0893225	CERAMIC CHIP 0.1UF+80-20% 16V

SYMBOL-NO	P-NO	DESCRIPTION
C0672	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0691	0893206	CERAMIC CHIP 680PF+-10% 50V
C0692	0893202	CERAMIC CHIP 330PF+-10% 50V
C0693	0893199	CERAMIC CHIP 220PF+-10% 50V
C0694	0893191	CERAMIC CHIP 6800PF+-10% 25V
C0695	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0696	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0901	0806174	ELECTROLYTIC 100UF 6.3V
C0902	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0905	0806168	ELECTROLYTIC 47UF 6.3V
C0906	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0907	0806175	ELECTROLYTIC 100UF 10V
C0908	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0909	0806174	ELECTROLYTIC 100UF 6.3V
C0910	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0911	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0915	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0916	0893118	CERAMIC CHIP 27PF+-5% 50V
C0917	0893119	CERAMIC CHIP 33PF+-5% 50V
C0918	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0919	0893119	CERAMIC CHIP 33PF+-5% 50V
C0920	0893126	CERAMIC CHIP 100PF+-5% 50V
C0921	0893131	CERAMIC CHIP 220PF+-5% 50V (TYPE521)
C0923	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0924	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0925	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0927	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0928	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0930	0806174	ELECTROLYTIC 100UF 6.3V
C0931	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0932	0806169	ELECTROLYTIC 47UF 16V
C0933	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0934	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0935	0806169	ELECTROLYTIC 47UF 16V
C0936	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0939	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0940	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C1002	0806169	ELECTROLYTIC 47UF 16V
C1003	0893044	CERAMIC CHIP 0.01UF+-10% 50V
C1004	0893234	CERAMIC CHIP 1500PF+80-20% 50V
C1005	0806163	ELECTROLYTIC 33UF 10V
C1006	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1007	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C1101	0893117	CERAMIC CHIP 22PF+-5% 50V
C1102	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C1103	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C1104	0806018	ELECTROLYTIC 2.2UF 6.3V
C1106	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1107	0806168	ELECTROLYTIC 47UF 6.3V
C1108	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1109	0806169	ELECTROLYTIC 47UF 16V
C1110	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C1111	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1113	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1116	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1117	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1118	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1119	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1120	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1121	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1122	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1124	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1125	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1126	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1127	0893193	CERAMIC CHIP 0.01UF+-10% 25V

SYMBOL-NO	P-NO	DESCRIPTION
C1128	0893079	CERAMIC DISC 0.01UF+80-20% 50V
C1129	0893079	CERAMIC DISC 0.01UF+80-20% 50V
C1130	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C1131	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C1133	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1134	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1135	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1136	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1137	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1138	0893117	CERAMIC CHIP 22PF+-5% 50V
C1139	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1141	0806169	ELECTROLYTIC 47UF 16V
C1142	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1143	0806168	ELECTROLYTIC 47UF 6.3V
C1144	0202319	CERAMIC CHIP 22PF+-2% 50V
C1145	0893125	CERAMIC CHIP 82PF+-5% 50V
C1146	0893125	CERAMIC CHIP 82PF+-5% 50V
C1147	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1148	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1149	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1150	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1151	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1152	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1153	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1154	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1156	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1158	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1159	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1160	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1161	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1162	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1163	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1164	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1165	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1166	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1167	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1168	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1169	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1170	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1173	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1174	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1201	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1202	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1203	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1204	0893132	CERAMIC CHIP 270PF+-5% 50V
C1205	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1206	0893007	CERAMIC CHIP 0.082UF+-10% 16V
C1207	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C1208	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C1209	0893133	CERAMIC CHIP 330PF+-5% 50V
C1210	0893133	CERAMIC CHIP 330PF+-5% 50V
C1211	0893133	CERAMIC CHIP 330PF+-5% 50V
C1212	0893055	CERAMIC CHIP 0.1UF+80-20% 16V
C1301	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1302	0893215	CERAMIC CHIP 3300PF+-10% 50V
C1303	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1304	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1305	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1306	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1307	0893215	CERAMIC CHIP 3300PF+-10% 50V
C1308	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1309	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1310	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1311	0806169	ELECTROLYTIC 47UF 16V
C1312	0893225	CERAMIC CHIP 0.1UF+80-20% 16V

SYMBOL-NO	P-NO	DESCRIPTION
C1313	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1317	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1318	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1319	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1320	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1401	0806157	ELECTROLYTIC 22UF 6.3V
C1402	0806157	ELECTROLYTIC 22UF 6.3V
C1403	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1404	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1405	0806167	ELECTROLYTIC 47UF 4V
C1406	0806167	ELECTROLYTIC 47UF 4V
C1407	0893209	CERAMIC CHIP 1200PF 50V
C1408	0893209	CERAMIC CHIP 1200PF 50V
C1409	0893209	CERAMIC CHIP 1200PF 50V
C1410	0893209	CERAMIC CHIP 1200PF 50V
C1411	0206647	ELECTROLYTIC 10UF 10V
C1412	0206647	ELECTROLYTIC 10UF 10V
C1413	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1414	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1415	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1416	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1417	0806157	ELECTROLYTIC 22UF 6.3V
C1418	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
R0001	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W (521)
R0005	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W(521)
R0006	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W (521)
R0007	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W(521)
R0008	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W(521)
R0009	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W (521)
R0010	0103930	CHIP RESISTOR 390 OHM+-5% 1/8W[MEC.]
R0010	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W(521)
R0011	0103838	RESISTOR CHIP 390 OHM+-5% 0.1W[MEC.]
R0011	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W (521)
R0012	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W(521)
R0013	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W (521)
R0014	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W(521)
R0015	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W(521)
R0016	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W (521)
R0017	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W(521)
R0018	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W (521)
R0019	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W(521)
R0020	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W (521)
R0021	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W(521)
R0022	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W (521)
R0023	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W (521)
R0025	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W(521)
R0026	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W(521)
R0027	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W(521)
R0028	0790027	CHIP RESISTOR 180 OHM+-5% 1/16W(521)
R0029	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W(521)
R0030	0790027	CHIP RESISTOR 180 OHM+-5% 1/16W(521)
R0031	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W(521)
R0032	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W(521)
R0033	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W(521)
R0034	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W(521)
R0035	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W(521)
R0036	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W(521)
R0037	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W (521)
R0040	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W(521)
R0043	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W(521)
R0101	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0102	0790007	CHIP RESISTOR 5.6 OHM+-5% 1/16W
R0103	0790007	CHIP RESISTOR 5.6 OHM+-5% 1/16W
R0104	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0105	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0106	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0107	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0108	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0109	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0110	0790076	CHIP RESISTOR 820KOHM+-5% 1/16W
R0111	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0112	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0113	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0114	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0115	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0116	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0117	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0119	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0120	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0121	0790008	CHIP RESISTOR 6.8 OHM+-5% 1/16W
R0122	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0123	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0124	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0125	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0127	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0128	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0129	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0130	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0132	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0133	0105681	CHIP RESISTOR 2.7KOHM+-1% 1/16W
R0134	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0138	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0141	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0142	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0143	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0144	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0146	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0147	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0148	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0149	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0150	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0152	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0154	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0156	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0157	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0158	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0159	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0160	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R0161	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0164	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0165	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0167	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0168	0790065	CHIP RESISTOR 120KOHM+-5% 1/16W
R0170	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0171	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R0172	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0173	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0174	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0175	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0176	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0180	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R0181	0790063	CHIP RESISTOR 82KOHM+-5% 1/16W
R0182	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0183	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0184	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0185	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0186	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0187	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0188	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0190	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION
R0191	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0192	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R0193	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0194	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0196	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0198	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0199	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0203	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0205	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0208	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0213	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0215	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0216	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0217	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0218	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0219	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0222	0790069	CHIP RESISTOR 0.27MOHM+-5% 1/16W
R0223	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0224	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0225	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0227	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R0228	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0229	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0234	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0236	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0239	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0240	0105702	CHIP RESISTOR 16KOHM+-5% 1/16W
R0241	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0244	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0246	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0250	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0253	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0254	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0261	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0267	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0268	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0273	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0295	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0296	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0298	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0355	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0356	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0357	0105688	CHIP RESISTOR 2.2KOHM+-1% 1/16W
R0358	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0359	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W(520)
R0362	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0364	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0366	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0367	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0371	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R0373	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0374	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0390	0104093	CHIP RESSISTOR 75 OHM+-5% 1/16W
R0391	0104093	CHIP RESSISTOR 75 OHM+-5% 1/16W
R0392	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R0397	0104093	CHIP RESSISTOR 75 OHM+-5% 1/16W
R0401L	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0402L	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0403L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0404L	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0405	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0408	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0410	0104121	CHIP RESISTOR 27KOHM+-1% 1/10W
R0414	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0415	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0417L	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0418L	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0419L	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R0428	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0429L	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0435	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0436L	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0445	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0447	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0460	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R0461L	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0462L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0463L	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0464	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0465	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0466	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0467	0790065	CHIP RESISTOR 150KOHM+-5% 1/16W
R0468	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0469	0790073	CHIP RESISTOR 47KOHM+-5% 1/16W
R0470	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0501	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0502	0103835	CHIP RESISTOR 220 OHM+-5% 0.1W
R0503	0103835	CHIP RESISTOR 220 OHM+-5% 0.1W
R0506	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0507	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0508	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0509	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0551	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0552	0790074	CHIP RESISTOR 560KOHM+-5% 1/16W
R0553	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0558	0105691	CHIP RESISTOR 24KOHM+-1% 1/16W
R0560	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0563	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0564	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0565	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0570	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0571	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0575	0104297	CHIP RESISTOR 10KOHM+-0.5% 16V
R0577	0104292	CHIP RESISTOR 1.0KOHM+-0.5% 1/16W
R0578	0104301	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0583	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0584	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0586	AQ10271R	CHIP RESISTOR 100 OHM+-0.5% 1/16W
R0588	AQ10272R	CHIP RESISTOR 390 OHM+-0.5% 1/16W
R0591	AQ10274R	CHIP RESISTOR 46.4KOHM+-0.5% 1/16W
R0593	AQ10273R	CHIP RESISTOR 680 OHM+-0.5% 1/16W
R0594	0104301	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0601	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0602	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0603	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0606	0104503	CHIP RESISTOR 27KOHM+-1% 1/16W
R0609	0105706	CHIP RESISTOR 24KOHM+-5% 1/16W
R0610	0105691	CHIP RESISTOR 24KOHM+-1% 1/16W
R0611	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0612	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0613	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0614	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0616	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0619	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0620	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0621	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0622	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0624	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0631	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0632	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION
R0636	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0641	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0642	0105815	CHIP RESISTOR 0.47 OHM+-10% 1/4W
R0661	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0662	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0663	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0671	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0672	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0681	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0682	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0688	0104567	CHIP RESISTER 150KOHM+-0.1% 1/16W
R0689	0105675	CHIP RESISTOR 100KOHM+-1% 1/16W
R0691	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0692	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0693	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0694	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0695	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0696	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0697	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0698	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0699	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0714	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W (521)
R0715	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0718	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0720	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0728	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0729	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0730	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0731	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0737	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0901	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0902	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0903	0790073	CHIP RESISTOR 470KOHM+-5% 1/16W
R0904	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0905	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0906	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0907	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0908	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0909	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0910	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0911	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0912	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0913	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0914	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0915	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0916	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0917	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0918	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0919	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0920	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0921	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0922	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0923	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0924	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0925	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0926	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0929	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0930	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0931	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0932	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0933	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0935	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0937	0104542	CHIP RESISTOR 10KOHM+-1% 1/16W
R0938	0104542	CHIP RESISTOR 10KOHM+-1% 1/16W
R0939	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0940	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0942	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0943	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0944	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0945	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0946	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0949	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0951	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0952	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0957	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0959	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0962	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0963	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0964	0104562	CHIP RESISTOR 39KOHM+-1% 1/16W
R0965	0104503	CHIP RESISTOR 27KOHM+-1% 1/16W
R0966	0104563	CHIP RESISTOR 47KOHM+-1% 1/16W
R0967	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0968	0104562	CHIP RESISTOR 39KOHM+-1% 1/16W
R0969	0104503	CHIP RESISTOR 27KOHM+-1% 1/16W
R0970	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0971	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0972	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0973	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0974	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0975	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0976	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W (521)
R0977	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0978	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0979	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0980	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0981	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0982	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0983	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0984	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0985	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0986	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0987	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0988	0790063	CHIP RESISTOR 82KOHM+-5% 1/16W
R0989	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0990	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0991	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0994	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R1001	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R1002	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1003	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1004	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1009	0103823	CHIP RESISTOR 22 OHM+-5% 0.1W
R1102	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1103	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1104	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1105	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1106	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1107	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R1108	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R1109	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R1110	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R1113	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1114	0104571	CHIP RESISTOR 3.9KOHM+-1% 1/16W
R1116	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R1117	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R1118	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R1119	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1120	0104545	CHIP RESISTOR 1.24KOHM+-1% 1/16W
R1121	0104558	CHIP RESISTOR 5.6KOHM+-1% 1/16W
R1122	0104563	CHIP RESISTOR 47KOHM+-1% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION
R1123	0104554	CHIP RESISTOR 1KOHM+-1% 1/16W
R1124	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1125	0104558	CHIP RESISTOR 5.6KOHM+-1% 1/16W
R1126	0104573	CHIP RESISTOR 1.2KOHM+-1% 1/16W
R1130	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1131	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R1132	0104534	CHIP RESISTOR 1.8KOHM+-1% 1/16W
R1133	0104558	CHIP RESISTOR 5.6KOHM+-1% 1/16W
R1134	0104502	CHIP RESISTOR 820 OHM+-1% 1/16W
R1135	0104553	CHIP RESISTOR 15KOHM+-1% 1/16W
R1139	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1140	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1141	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R1142	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R1143	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1146	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1147	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1148	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1149	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1150	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1151	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1152	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1153	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R1158	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1159	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1162	0103841	CHIP RESISTOR 680 OHM+-5% 0.1W
R1164	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R1171	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R1172	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1201	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R1202	0790069	CHIP RESISTOR 270KOHM+-5% 1/16W
R1203	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1204	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1205	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1206	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1207	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1208	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1209	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1210	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1211	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1212	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1213	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1214	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1215	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1216	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1217	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1218	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1220	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R1221	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R1222	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1224	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R1301	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1302	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1303	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1304	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1306	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W
R1308	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1309	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1310	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W
R1313	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W
R1315	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1316	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1317	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W
R1322	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R1323	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R1330	0104579	CHIP RESISTOR 12KOHM+-1% 1/16W
R1331	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1332	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1335	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1336	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1401	0103821	CHIP RESISTOR 15 OHM+-5% 0.1W
R1402	0103821	CHIP RESISTOR 15 OHM+-5% 0.1W
R1403	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R1404	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R1405	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R1406	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R1407	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1408	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1409	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1410	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1411	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R1412	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R1413	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1414	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1416	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
RT0001	5040202	SEMI VARIABLE 2.2KOHM (TYPE521)
RT0002	5040202	SEMI VARIABLE 2.2KOHM (TYPE521)
RT0003	5040204	SEMI VARIABLE 10KOHM (TYPE521)
RT0004	5040204	SEMI VARIABLE 10KOHM (TYPE521)
RT0005	5040202	SEMI VARIABLE 2.2KOHM (TYPE521)
RT0103	5040201	VARIABLE RESISTOR 470 OHM
RT0203	5040205	SEMI VARIABLE 22KOHM
RT0204	0104731	CHIP RESISTOR 5.6KOHM+-10% 1/16W
RT0205	5040204	SEMI VARIABLE 10KOHM
RT0206	0104159	CHIP RESISTER 1.5KOHM+-10% 1/8W
RT0207	5040205	SEMI VARIABLE 22KOHM
RT0209	5040205	SEMI VARIABLE 22KOHM
RT0210	5040201	VARIABLE RESISTOR 470 OHM
RT0211	0104159	CHIP RESISTER 1.5KOHM+-10% 1/8W
RT0212	5040202	SEMI VARIABLE 2.2KOHM
RT0215	5040204	SEMI VARIABLE 10KOHM
RT0216	0104731	CHIP RESISTOR 5.6KOHM+-10% 1/16W
D0001	5337422	DIODE DA221 (TYPE521)
D0001	CH10451	DIODE PLT-462T3[MECHA.]
D0051	CH10521	DIODE DNF318U-1 (TYPE521)
D0052	CH10521	DIODE DNF318U-1 (TYPE521)
D0101	5337422	DIODE DA221
D0352	5337351	DIODE MA132WK
D0394	5337422	DIODE DA221
D0401	5337422	DIODE DA221
D0551	5337372	DIODE SB07-03C
D0554	5337352	DIODE MA132WA
D0556	5326021	DIODE MA160-MID
D0601	CC10291R	DIODE 1SS353
D0901	CC10291R	DIODE 1SS353
D0902	CC10291R	DIODE 1SS353
D0905	CC10291R	DIODE 1SS353
D1001	CC10291R	DIODE 1SS353
D1101	5337372	DIODE SB07-03C
D1102	CC10291R	DIODE 1SS353
D1103	5328305	DIODE MA151WA
D1104	5382911	DIODE LT1D82A
D1303	5337422	DIODE DA221
D1403	5328305	DIODE MA151WA
IC0001	CK13391R	IC AN2001SB (TYPE521)
IC0101	1366631	IC HA118189MP
IC0102	CK13461R	IC UPC5023GS-101-E1
IC0201	1366901	IC HA118372F
IC0202	CK12041R	IC CXL5516N
IC0203	1352331	IC CXL5507M

SYMBOL-NO	P-NO	DESCRIPTION
IC0204	CK13471R	IC UPC5023GS-104-E1
IC0401	CK12231	IC HA118193F
IC0551	1366251	IC TL14641PT
IC0601	CK12151R	IC UPC5023GS-079-E1
IC0631	CK14251R	IC LB1888V
IC0671	1366651	IC BA6417F
IC0901	CK12177U	IC CXP87240A-107Q
IC0902	1352582	IC S-84206F
IC0903	1366081	IC HD74HCT125T
IC0904	1366612	IC XLU5949AFS
IC0907	CJ10201	TRANSISTOR GP1U261X
IC1101	1366681	IC HA118184F
IC1102	1365392	IC HD49319AF
IC1103	CK12132U	IC HG51CS035TEA
IC1104	CK12061R	IC UPD16510GR
IC1106	CK13801U	IC HD6433042T13F
IC1107	CK14171R	IC MX25S67MR
IC1201	CK13791R	IC UPC5023GS-105-E1
IC1301	1366804	IC MPC17AT85VMEL
IC1302	1366804	IC MPC17AT85VMEL
IC1401	FU10171	GYRO SENSOR ENC-05EA-02
IC1402	FU10172	GYRO SENSOR ENC-05EB-02
IC1403	CK11721R	IC NJU7032M
IC1404	1359931	IC TC4W66F
Q0001	1322341	TRANSISTOR PT481OF
Q0001	1323301	TRANSISTOR 2SB1219 (TYPE521)
Q0002	5327521	PHOTO TRANSISTOR SPI-315-C
Q0003	1323252	TRANSISTOR XP4501 (TYPE521)
Q0003	5327521	PHOTO TRANSISTOR SPI-315-C
Q0004	1322341	TRANSISTOR PT481OF
Q0004	1323252	TRANSISTOR XP4501 (TYPE521)
Q0005	1323252	TRANSISTOR XP4501 (TYPE521)
Q0051	CA10691R	TRANSISTOR 2SD1366A
Q0101	1323301	TRANSISTOR 2SB1219
Q0102	1323231	TRANSISTOR 2SB1462
Q0103	1323231	TRANSISTOR 2SB1462
Q0104	1323181	TRANSISTOR XP4213
Q0105	1323301	TRANSISTOR 2SB1219
Q0107	1323231	TRANSISTOR 2SB1462
Q0108	1323271	TRANSISTOR DTC144EE
Q0109	1323231	TRANSISTOR 2SB1462
Q0110	5326471	TRANSISTOR 2SB1218 (R)
Q0112	1323321	TRANSISTOR 2SD2216
Q0117	1323173	TRANSISTOR UN9212
Q0120	5326454	TRANSISTOR DTA124EU
Q0123	1323321	TRANSISTOR 2SD2216
Q0170	1323301	TRANSISTOR 2SB1219
Q0171	1323253	TRANSISTOR XP4401
Q0173	1323253	TRANSISTOR XP4401
Q0175	1323321	TRANSISTOR 2SD2216
Q0176	1323231	TRANSISTOR 2SB1462
Q0210	1323321	TRANSISTOR 2SD2216
Q0216	1323173	TRANSISTOR UN9212
Q0217	1323271	TRANSISTOR DTC144EE
Q0218	1323271	TRANSISTOR DTC144EE
Q0225	1323231	TRANSISTOR 2SB1462
Q0226	1323271	TRANSISTOR DTC144EE
Q0350	1323321	TRANSISTOR 2SD2216
Q0352	1323231	TRANSISTOR 2SB1462
Q0353	1323361	TRANSISTOR XP1501
Q0356	1323321	TRANSISTOR 2SD2216
Q0390	1323271	TRANSISTOR DTC144EE
Q0401L	1323171	TRANSISTOR UN9213
Q0403L	1323321	TRANSISTOR 2SD2216
Q0404	1323321	TRANSISTOR 2SD2216
Q0407	1323171	TRANSISTOR UN9213
Q0408L	1323361	TRANSISTOR XP1501
Q0409	1323321	TRANSISTOR 2SD2216
Q0410	1323321	TRANSISTOR 2SD2216
Q0501	5326513	TRANSISTOR 2SB1188 (R)
Q0502	1323321	TRANSISTOR 2SD2216
Q0551	CA10271R	TRANSISTOR 2SB1424
Q0553	1308011	TRANSISTOR MPL1
Q0554	5326502	TRANSISTOR 2SD1766 (R)
Q0556	CA10271R	TRANSISTOR 2SB1424
Q0557	1323321	TRANSISTOR 2SD2216
Q0602	1323321	TRANSISTOR 2SD2216
Q0691	1323321	TRANSISTOR 2SD2216
Q0692	CA10271R	TRANSISTOR 2SB1424
Q0901	1323251	TRANSISTOR XP4601
Q0903	1323081	TRANSISTOR 2SA1036K
Q0904	1323231	TRANSISTOR 2SB1462
Q0905	1323321	TRANSISTOR 2SD2216
Q0908	1323271	TRANSISTOR DTC144EE
Q1001	5328221	TRANSISTOR 2SC2620-QC
Q1101	CA10583R	TRANSISTOR 2SB709A
Q1103	5328192	TRANSISTOR 2SC2462LD
Q1104	CA10583R	TRANSISTOR 2SB709A
Q1105	CA10583R	TRANSISTOR 2SB709A
Q1106	CA10583R	TRANSISTOR 2SB709A
Q1107	5328192	TRANSISTOR 2SC2462LD
Q1109	1323271	TRANSISTOR DTC144EE
Q1110	5328192	TRANSISTOR 2SC2462LD
Q1201	5328192	TRANSISTOR 2SC2462LD
Q1202	1323141	TRANSISTOR 2SC2411K
Q1401	1323271	TRANSISTOR DTC144EE
⚠T0551	5148333	TRANSFORMAR, POWER
L0001	0773003	COIL 47UH (TYPE521)
L0002	0773002	COIL 22UH (TYPE521)
L0003	0773119	CHOKE COIL 12UH+-5% (TYPE521)
L0101	0773003	COIL 47UH
L0102	0773094	CHOKE COIL 100UH+-10%
L0103	0773124	CHOKE COIL 27UH+-5%
L0104	0773003	COIL 47UH
L0105	0773117	CHOKE COIL 8.2UH+-5%
L0107	0773134	CHOKE COIL 150UH+-5%
L0108	0773135	CHOKE COIL 180UH+-5%
L0109	5129255	COIL 470UH
L0110	0773124	CHOKE COIL 27UH+-5%
L0111	5129256	COIL 330UH
L0170	0773091	CHOKE COIL 33UH
L0171	0773091	CHOKE COIL 33UH
L0172	0773129	CHOKE COIL 68UH+-5%
L0203	0773118	CHOKE COIL 10UH+-5%
L0204	0773133	CHOKE COIL 120UH+-5%
L0206	0773088	CHOKE COIL 15UH
L0350	0773003	COIL 47UH
L0401	0773003	COIL 47UH
L0552	BA10127R	COIL 10UH
L0553	BA10128R	COIL 22UH
L0554	BA10135R	COIL 10UH
L0556	BA10127R	COIL 10UH
L0558	BA10129R	COIL 47UH
L0560	0773001	CHOCE COIL 10UH+-10%
L0561	0773004	COIL 100UH
L0562	0773004	COIL 100UH
L0601	0773087	CHOKE COIL 10UH+-10%
L0901	0773004	COIL 100UH
L0902	0773121	CHOKE COIL 15UH+-5%
L0903	0773088	CHOKE COIL 15UH (TYPE521)

SYMBOL-NO	P-NO	DESCRIPTION
L1101	0773003	COIL 47UH
L1102	0773003	COIL 47UH
L1103	0773001	CHOCE COIL 10UH+-10%
L1106	0773094	CHOKE COIL 100UH+-10%
L1109	0773001	CHOCE COIL 10UH+-10%
L1110	0773001	CHOCE COIL 10UH+-10%
L1301	0773001	CHOCE COIL 10UH+-10%
L1302	0773001	CHOCE COIL 10UH+-10%
X0201	1930211	CRYSTAL
X0901	1930171	CRYSTAL
X0902	BL10311R	CRYSTAL
X1101	1930094	CRYSTAL
BL0501	BV10201R	CHOKE COIL
CN0001	5845867	CONNECTOR
CN0502	5847081	CONNECTOR
CN0503	5845861	CONNECTOR
CN0901	1880371	CONNECTOR
CP0202	BE10231R	LC FILTER
CP0203	BE10341R	FILTER, BAND PASS
CP0204	BE10343R	FILTER, BAND PASS
CP1101	5172675	FILTER, LOW PASS
⚠F0501	5723232	FUSE 2A
⚠F0502	5723231	FUSE 1.6A
JK0200	5695291	SOCKT
JK0201	ES10242	JACK, AV
JK0501	5693601	DC JACK
PG0001	5666921	MINI PLUG
PG0001	5668672	PLUG (TYPE521)
PG0051	5668672	PLUG (TYPE521)
PG0101	EA10501R	PLUG
PG0401L	5668671	MINI PLUG
PG0501	1830322	PLUG
PG0502	5668671	MINI PLUG
PG0503	5668675	PLUG
PG0551	5669037	MINI PLUG
PG0601	5692362	MINI PLUG
PG0602	EA10641R	PLUG
PG0603	5668753	MINI PLUG
PG0604	5668671	MINI PLUG
PG0901	5668572	MINI PLUG
PG0902	5668752	MINI PLUG
PG0903	5669193	MINI PLUG (TYPE521)
PG0903	5669194	PLUG (TYPE520)
PG1001	1830344	PLUG
PG1101	1830343	PLUG
PG1102	1830351	PLUG
PG1301	EA10407R	CONNECTOR
⚠QF1301	FM10112R	FUSE 0.2A
S0003	5636171	SWITCH
S0004	5636171	SWITCH
S0005	5636171	SWITCH
S0006	5635331	SWITCH
S0007	5613523	SWITCH
S0501	FD10201	SWITCH
S0502	FE10151	SWITCH
SW0901	1742012	SWITCH
		CRD SECTION(TYPE520, 521)
C2102	0893062	CERAMIC CHIP 1UF+80-20% 16V
C2104	0893062	CERAMIC CHIP 1UF+80-20% 16V
C2105	0893191	CERAMIC CHIP 6800PF+-10% 25V
C2106	0893062	CERAMIC CHIP 1UF+80-20% 16V
C2108	0806153	ELECTROLYTIC 10UF 16V
C2110	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2113	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C2114	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2119	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C2120	0893059	CERAMIC CHIP 0.47UF+80-20% 16V
C2121	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2122	0893231	CERAMIC CHIP 0.068UF+80-20% 25V
C2123	0893231	CERAMIC CHIP 0.068UF+80-20% 25V
C2124	0893231	CERAMIC CHIP 0.068UF+80-20% 25V
C2136	0893062	CERAMIC CHIP 1UF+80-20% 16V
C2137	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C2138	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C2141	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2181	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C2182	0806158	ELECTROLYTIC 22UF 16V
C2183	0806174	ELECTROLYTIC 100UF 6.3V
C2184	0806149	ELECTROLYTIC 4.7UF 25V
C2185	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C2187	0806153	ELECTROLYTIC 10UF 16V
C2203	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2204	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C2205	0893175	CERAMIC CHIP 1000PF+-5% 50V
C2207	0893175	CERAMIC CHIP 1000PF+-5% 50V
C2211	0206673	ELECTROLYTIC 33UF 6.3V
C2212	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2213	0893175	CERAMIC CHIP 1000PF+-5% 50V
C2214	0893127	CERAMIC CHIP 120PF+-5% 50V
C2215	0893217	CERAMIC CHIP 4700PF+-10% 50V
C2216	0806019	ELECTROLYTIC 2.2UF 10V
C2217	0202025	CERAMIC DISC 4700PF+-5% 50V
C2218	0806149	ELECTROLYTIC 4.7UF 25V
C2219	0893154	CERAMIC CHIP 27PF+-5% 50V
C2220	0893154	CERAMIC CHIP 27PF+-5% 50V
C2221	0893154	CERAMIC CHIP 27PF+-5% 50V
C2222	0893154	CERAMIC CHIP 27PF+-5% 50V
C2223	0893154	CERAMIC CHIP 27PF+-5% 50V
C2224	0893154	CERAMIC CHIP 27PF+-5% 50V
C2225	0893154	CERAMIC CHIP 27PF+-5% 50V
C2226	0893154	CERAMIC CHIP 27PF+-5% 50V
C2227	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
R2101	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R2102	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R2103	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R2104	0105203	CHIP RESISTOR 18KOHM+-0.5% 1/16W
R2105	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R2106	0790065	CHIP RESISTOR 120KOHM+-5% 1/16W
R2107	0790065	CHIP RESISTOR 120KOHM+-5% 1/16W
R2108	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R2109	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R2110	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R2111	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R2112	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R2113	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R2115	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R2118	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R2119	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R2120	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R2121	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R2122	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R2125	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R2126	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R2128	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R2129	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R2139	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R2140	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R2142	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION
R2143	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R2148	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R2151	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R2153	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R2154	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R2181	0105593	CHIP RESISTOR 680 OHM+-5% 1/2W
R2182	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R2184	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R2202	0105697	CHIP RESISTOR 390KOHM+-1% 1/16W
R2203	0105197	CHIP RESISTOR 22KOHM+-0.5% 1/16W
R2204	0105202	CHIP RESISTOR 39KOHM+-0.5% 1/16W
R2207	0104514	CHIP RESISTOR 1.96KOHM+-1% 1/16W
R2208	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R2209	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R2210	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R2211	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R2212	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R2213	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R2215	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R2216	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R2217	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
RT2101	AW10168	TIMMER RESISTOR
RT2102	AW10168	TIMMER RESISTOR
RT2103	AW10168	TIMMER RESISTOR
RT2104	5040107	SEMI VARIABLE 10KOHM
RT2105	5040106	SEMI VARIABLE 4.7KOHM
RT2106	5040106	SEMI VARIABLE 4.7KOHM
RT2181	5040106	SEMI VARIABLE 4.7KOHM
RT2201	5040108	SEMI VARIABLE
D2101	5337354	DIODE MA133
D2102	5337354	DIODE MA133
D2103	5337354	DIODE MA133
D2201	5337031	DIODE 1SV201
D2202	5337353	DIODE MA132K
IC2101	CK10522U	IC IR3Y18A
IC2181	CK11961R	IC NJM431U
IC2202	1366341	IC ETM3030TOA
L2181	0773094	CHOKE COIL 100UH+-10%
L2182	0773094	CHOKE COIL 100UH+-10%
L2203	BA10131R	COIL 220UH
L2204	0773121	CHOKE COIL 15UH+-5%
X2101	BL10111R	CRYSTAL
CP2101	5172474	TRAP, COIL
PG2102	1830022	PLUG
PG2104	1830022	PLUG
PG2201	EA10348R	CONNECTOR
PG2203	1830191	PLUG

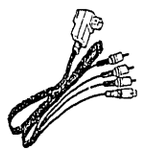
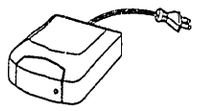
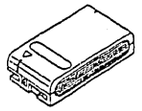
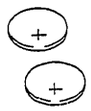
3. MECHANICAL PARTS LIST

Note: This replacement parts list applies to the following model.
Applicable model: VM-H620A/H720A

SYMBOL-NO	P-NO	DESCRIPTION	
		MECHANISM SECTION	
101	QD13915	LID, CASSETTE	(TYPE620)
101	QD13919	LID, CASSETTE	(TYPE720)
102	QX10823	RING, LENS	
103	4799701	CAP, FOOD	
105	QX10833	RING, LENS	
106	NX11242	RING	
107	QD13444	CASE, SIDE (L)	
109	PC11052	BUTTON, LID	
110	QX10177	HOOD, LENS	
111	QD11734	COVER, TOP	
112	QD11721	COVER, LENS	
113	QD11861	COVER, SWITCH	
114	PC11061	KNOB, EJECT	
115	GH10171	MICROPHONE	
116	NT10281	FRAME, MECHANISM	
117	NJ10411	HOLDER	
118	QX10813	CASE, BATTERY	
119	QD11702	WINDOW, IR	
120	FH10192	SWITCH ASSY	
121	4899872	SPRING	
122	5604851	SWITCH, T/W	
123	QD11627	CASE, SIDE(R)	
124	4826123	STOPPER	
125	4345032	SHEET, EVF	
126	QD11684	CASE, BATTERY	(TYPE620)
126	QD11683	CASE, BATTERY	(TYPE720)
127	NJ10471	HOLDER, BATTERY(R)	
128	NJ10401	HOLDER, BATTERY(L)	
129	NJ10421	HOLDER, JACK	
130	PC11081	BOTTON, POWER	
131	4752651	KNOB, LOCK	
132	QD11971	CAP, BATTERY	
133	QX11041	SHOE	
134	PV10171	STRAP, HAND	
135	NX11531	HINGE	
136	MN10831	SHEET	
137	MU10651	CUSHION	
138	QD11651	COVER, TERMINAL	
139	QD11661	COVER, JACK	
140	QD11641	COVER, DC	
141	KL10491	TERMINAL(L)	
142	KL10501	TERMINAL(R)	
143	NJ10541	HOLDER, TERMINAL	
144	QX11051	COVER, TERMINAL	
145	NX11261	HOLDER, BATTERY	
146	NJ10431	HOLDER, EJECT	
150	QL13002	SHEET, BATTERY	
201	6404062	REEL DISK, TAKE-UP	
202	6406114	GEAR	
203	7787733	WASHER	
204	6404073	REEL DISK, SUPPLY	
205	6401644	GEAR, IDLER	
206	6406211	GEAR	
207	6406034	GEAR, PULLEY	
208	6358471	BELT	
209	KX10622	LOADING MOTOR BLOCK	
210	6376312	GEAR, DRIVE	
211	6406082	GEAR	
212	6406242	GEAR	
213	6405834	GEAR (R)	
214	7787731	WASHER	
215	6405824	GEAR (L)	
216	6406131	GEAR	
217	4588464	RING, LOADING	
218	4589354	BAS, GUIDE ROLLER(I)	
219	KX10171	GUIDE ROLLER	
220	4589366	BASE, GUIDE ROLLER(O)	
221	KX11161	GUIDE ROLLER	
222	4587796	PLATE	
223	KX10534	BASE, CYLINDER	
224	6406156	ROLLER, IMPEDANCE	
227	4589012	ARM, TENSION	
228	6554231	SPRING	
229	4588553	BAND, TENSION	
230	6408832	COVER, IDLER	
231	NA10601	PLATE	
232	4588294	ARM, PRESSURE ROLLER	
233	7787571	WASHER	
234	4588702	ARM	
235	6554201	SPRING	
236	KX10731	LEVER	
237	4588532	SPRING	
238	4588429	PLATE	
239	4588353	BRAKE	
240	6554221	SPRING	
241	6554214	SPRING	
242	GP10191	MOTOR, CAPSTAN	
244	5794021	BRUSH	
245	4588995	COVER	
246	KX10761	CASSETTE HOLDER ASSY	
247	7789314	WASHER	
248	4827262	BRACKET	
501	HX10253	CYLINDER ASSY (CY-53C3-F)	
601	NT10302	FRAME, LENS	
602	UE11253	CCD IMAGE SENSOR ASSY	
603	KQ10433	LENS ASSY	
607	NX11251	RUBBER	
608	DT10151	CRYSTAL	
700	UX10482	EVF ASSY	(TYPE620)
700	UX10461	EVF ASSY	(TYPE720)
△701	5319062	CRT	(TYPE620)
702	4715252	CASE, CRT	(TYPE620)
701	CS10321	MODULE HTS9554	(TYPE720)
703	4715241	CASE, CRT(B)	(TYPE620)
702	DB10161	LCD	(TYPE720)
703	MN11221	SPACER	(TYPE720)
704	4592241	COVER	(TYPE620)
705	QD11823	CASE, EVF	(TYPE620)
706	EF10248	CONNECTOR	(TYPE620)
707	QD13541	LENS, EVF	(TYPE620)
708	QX11991	CAP, EYE	(TYPE620)
709	QD11851	CASE, EVF(B)	(TYPE620)
710	QD10584	HOLDER, LCD	(TYPE720)
711	QD10574	COVER LIGHT	(TYPE720)
712	QD10612	PIECE	(TYPE720)
713	4717041	LENS, EVF	(TYPE720)
714	4798771	CAP, EYE	(TYPE720)
715	QD11787	CASE, EVF	(TYPE720)
716	QD12172	CASE, EVF	(TYPE720)
723	JD10211	FLEXIBLE CONNECTOR	(TYPE720)
724	5846771	CONNECTOR	(TYPE720)
725	5844972	CONNECTOR	(TYPE720)
726	MU10711	SHEET	(TYPE720)
751	4102531	SCREW	
752	QD13291	CASE, LOWER	
753	4115381	CORD, POWER	
754	QD13941	CASE, UPPER	

SYMBOL-NO	P-NO	DESCRIPTION
755	QL12833	SHEET, CLEAR
901	7775946	SCREW (2X6)
902	7775963	SCREW(2X3)
903	7775945	SCREW(2X5)
905	7773891	SCREW
906	8650103	SCREW(2X3)
907	MJ10221	SCREW
908	8700968	SCREW(1.7X3.0)
909	8639106	SCREW(2X6)
911	8619003	SCREW 1.7X5 (TYPE620)
912	8700970	SCREW(1.7X4.0)
913	MJ10311	SCREW (M2X4.5)
951	8712024	PAN HEAD SCREW-1.4MMDX3MM
952	8700272	SCREW(1.7X5)
953	7775921	SCREW(1.4X2)
954	8714004	SCREW(1.4X2.5)
956	8619065	SCREW(1.7X6)
957	8700976	SCREW(1.7X8.0)
958	7770791	SCREW
959	8712904	SCREW(1.4X2.0)
960	8619063	SCREW(1.7X3)
961	8711105	SCREW(2X5)
962	7785886	SCREW
963	8700264	1.7X2 SCREW
964	8741103	SCREW(2X3)
		ACCESSORIES
△802	TS11742	AC ADAPTOR (VM-AC85A)
803	EV10411	CORD, PLUG
804	5856292	CORD, POWER
805	5616582	REMOTE HAND SET(VM-RM70A)
807	TS11791	SHOULDER STRAP
808	4798221	STRING, CAP

ACCESSORIES

△AC ADAPTOR/CHARGER	DC CORD	AV OUTPUT CORD (For Normal 8 MODEL)	AV OUTPUT CORD (For Hi-8 MODEL)
			
[VM-AC85A]			
REMOTE CONTROLLER	REMOTE CONTROLLER	SHOULDER STRAP	STRING
			
[VM-RME55A]	[VM-RM70A]		
AV OPTICAL WIRELESS RECEIVER (For Type 521)	△	△	
			
[VM-IR20A]			

WARNING : Keep this battery away from children.
If swallowed, consult a physician immediately for emergency treatment.

4. ELECTRICAL PARTS LIST

Note: This replacement parts list applies to the following model.
Applicable model: VM-H620A/H720A

SYMBOL-NO	P-NO	DESCRIPTION
		VCR & CAMERA SECTION
C0101	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0102	0806174	ELECTROLYTIC 100UF 6.3V
C0103	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0104	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0105	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0106	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0108	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0109	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0110	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0111	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0112	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0113	0806001	ELECTROLYTIC 0.1UF 35V
C0114	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0115	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0116	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0117	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0118	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0119	0893119	CERAMIC CHIP 33PF+-5% 50V
C0120	0893122	CERAMIC CHIP 47PF+-5% 50V
C0121	0893121	CERAMIC CHIP 39PF+-5% 50V
C0130	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0131	0806168	ELECTROLYTIC 47UF 6.3V
C0132	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0133	0893119	CERAMIC CHIP 33PF+-5% 50V
C0134	0893104	CERAMIC CHIP 2.0PF 50V
C0136	0893115	CERAMIC CHIP 15PF+-5% 50V
C0137	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0140	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0141	0893133	CERAMIC CHIP 330PF+-5% 50V
C0142	0893123	CERAMIC CHIP 56PF+-5% 50V
C0143	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0144	0893214	CERAMIC CHIP 2700PF+-10% 50V
C0145	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0146	0893106	CERAMIC CHIP 4.0PF+-0.25% 50V
C0147	0893114	CERAMIC CHIP 12PF+-5% 50V
C0148	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0149	0893117	CERAMIC CHIP 22PF+-5% 50V
C0150	0893114	CERAMIC CHIP 12PF+-5% 50V
C0151	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0152	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0153	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0154	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0155	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0156	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0159	0893109	CERAMIC CHIP 7.0PF 50V
C0163	0806168	ELECTROLYTIC 47UF 6.3V
C0164	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0165	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0168	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0169	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0170	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0171	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0172	0806153	ELECTROLYTIC 10UF 16V
C0173	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0174	0806124	ELECTROLYTIC 10UF 4V
CC175	0893106	CERAMIC CHIP 4.0PF+-0.25% 50V
C0176	0893117	CERAMIC CHIP 22PF+-5% 50V
C0177	0893152	CERAMIC CHIP 18PF+-5% 50V
C0178	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0179	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0180	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0181	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0182	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0183	0806153	ELECTROLYTIC 10UF 16V
C0184	0893055	CERAMIC CHIP 0.1UF+80-20% 16V
C0185	0806023	ELECTROLYTIC 3.3UF 4V
C0187	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0188	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0189	0893161	CERAMIC CHIP 82PF+-5% 50V
C0190	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0191	0893124	CHIP CERAMIC 68PF+-5% 50V
C0201	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0202	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0203	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0204	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0205	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0206	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0207	0893115	CERAMIC CHIP 15PF+-5% 50V
C0208	0893127	CERAMIC CHIP 120PF+-5% 50V
C0209	0893122	CERAMIC CHIP 47PF+-5% 50V
C0210	0893109	CERAMIC CHIP 7.0PF 50V
C0213	0893102	CERAMIC CHIP 1.0PF+-0.25% 50V
C0214	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0215	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0216	0806174	ELECTROLYTIC 100UF 6.3V
C0217	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0218	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0219	0806024	ELECTROLYTIC 3.3UF 6.3V
C0224	0893127	CERAMIC CHIP 120PF+-5% 50V
C0226	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C0227	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0228	0893059	CERAMIC CHIP 0.47UF+80-20% 16V
C0229	0893004	CERAMIC CHIP 0.047UF+-10% 16V
C0230	0893122	CERAMIC CHIP 47PF+-5% 50V
C0231	0806168	ELECTROLYTIC 47UF 6.3V
C0232	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0235	0893124	CHIP CERAMIC 68PF+-5% 50V
C0237	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0238	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0240	0893114	CERAMIC CHIP 12PF+-5% 50V
C0242	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0243	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0244	0806027	ELECTROLYTIC 4.7UF 4V
C0245	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0246	0806124	ELECTROLYTIC 10UF 4V
C0247	0806027	ELECTROLYTIC 4.7UF 4V
C0248	0893118	CERAMIC CHIP 27PF+-5% 50V
C0249	0893127	CERAMIC CHIP 120PF+-5% 50V
C0250	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0251	0806027	ELECTROLYTIC 4.7UF 4V
C0252	0806149	ELECTROLYTIC 4.7UF 25V
C0253	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0254	0806153	ELECTROLYTIC 10UF 16V
C0255	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0256	0893162	CERAMIC CHIP 100PF+-5% 50V
C0257	0806174	ELECTROLYTIC 100UF 6.3V
C0258	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0259	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0260	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0261	0893117	CERAMIC CHIP 22PF+-5% 50V
C0262	0893108	CERAMIC CHIP 6.0PF+-0.5% 50V
C0263	0893011	CERAMIC CHIP 0.15UF+-10% 16V
C0264	0893167	CERAMIC CHIP 270PF+-5% 50V
C0265	0893165	CERAMIC CHIP 180PF+-5% 50V
C0266	0893164	CERAMIC CHIP 150PF+-5% 50V
C0267	0893153	CERAMIC CHIP 22PF+-5% 50V
C0270	0893008	CERAMIC CHIP 0.1UF +-10% 16V

SYMBOL-NO	P-NO	DESCRIPTION
C0271	0806153	ELECTROLYTIC 10UF 16V
C0272	0893118	CERAMIC CHIP 27PF+-5% 50V
C0275	0806174	ELECTROLYTIC 100UF 6.3V
C0350	0806124	ELECTROLYTIC 10UF 4V
C0351	0806178	ELECTROLYTIC 220UF 4V
C0352	0806178	ELECTROLYTIC 220UF 4V
C0353	0806124	ELECTROLYTIC 10UF 4V
C0354	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0355	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0356	0893193	CERAMIC CHIP 0.01UF+-10% 25V (620)
C0357	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0358	0806168	ELECTROLYTIC 47UF 6.3V
C0359	0806027	ELECTROLYTIC 4.7UF 4V
C0360	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0362	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0364	0806124	ELECTROLYTIC 10UF 4V
C0365	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0368	0893131	CERAMIC CHIP 220PF+-5% 50V
C0391	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0392	0893079	CERAMIC DISC 0.01UF+80-20% 50V
C0401L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0401R	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0402L	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C0402R	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C0403L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0403R	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0404L	0893213	CERAMIC CHIP 2200PF+-10% 50V
C0404R	0893213	CERAMIC CHIP 2200PF+-10% 50V
C0405L	0893211	CERAMIC CHIP 1500PF+-10% 50V
C0405R	0893211	CERAMIC CHIP 1500PF+-10% 50V
C0406L	0806163	ELECTROLYTIC 33UF 10V
C0406R	0806163	ELECTROLYTIC 33UF 10V
C0407L	0806018	ELECTROLYTIC 2.2UF 6.3V
C0407R	0806018	ELECTROLYTIC 2.2UF 6.3V
C0408L	0806027	ELECTROLYTIC 4.7UF 4V
C0408R	0806027	ELECTROLYTIC 4.7UF 4V
C0409L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0409R	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0410L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0410R	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0411L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0411R	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0412L	0806117	ELECTROLYTIC 3.3UF 16V
C0412R	0806147	ELECTROLYTIC 3.3UF 35V
C0413	0806018	ELECTROLYTIC 2.2UF 6.3V
C0415L	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0415R	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0416	0806027	ELECTROLYTIC 4.7UF 4V
C0417L	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0417R	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0418L	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0418R	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0419L	0893216	CERAMIC CHIP 3900PF+-10% 50V
C0419R	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0420	0806131	CHIP CAPACITOR 2.2UF+-20% 20V
C0421	0893186	CERAMIC CHIP 0.033UF+-10% 16V
C0422	0806153	ELECTROLYTIC 10UF 16V
C0423	0806153	ELECTROLYTIC 10UF 16V
C0424L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0425	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0426	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C0428	0806168	ELECTROLYTIC 47UF 6.3V
C0430L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0430R	0893091	CERAMIC CHIP 0.022UF+-10% 16V
C0431L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0431R	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0432	0806131	CHIP CAPACITOR 2.2UF+-20% 20V
C0439	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0441L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0441R	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0443	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0445	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0457L	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0458	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0459	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0460	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0461	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0462R	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0501	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0502	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0503	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0551	0893155	CERAMIC CHIP 33PF+-5% 50V
C0552	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0553	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0555	0209942	CERAMIC CHIP 100PF+-5% 50V
C0556	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0557	0806153	ELECTROLYTIC 10UF 16V
C0558	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0559	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0560	0893202	CERAMIC CHIP 330PF+-10% 50V
C0561	0893165	CERAMIC CHIP 180PF+-5% 50V
C0562	0893203	CERAMIC CHIP 390PF+-10% 50V
C0563	0893158	CERAMIC CHIP 56PF+-5% 50V
C0567	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C0570	0206671	ELECTROLYTIC 10UF 10V
C0571	0206671	ELECTROLYTIC 10UF 10V
C0573	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0577	0206671	ELECTROLYTIC 10UF 10V
C0579	0206671	ELECTROLYTIC 10UF 10V
C0581	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0582	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0585	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V
C0586	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0588	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V
C0589	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0590	0806157	ELECTROLYTIC 22UF 6.3V
C0591	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0601	0893205	CERAMIC CHIP 560PF+-10% 50V
C0602	0806149	ELECTROLYTIC 4.7UF 25V
C0603	0893115	CERAMIC CHIP 15PF+-5% 50V
C0604	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0605	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0606	0893204	CERAMIC CHIP 470PF+-10% 50V
C0607	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0608	0893204	CERAMIC CHIP 470PF+-10% 50V
C0609	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0610	0806153	ELECTROLYTIC 10UF 16V
C0612	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0613	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0614	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0615	0893205	CERAMIC CHIP 560PF+-10% 50V
C0616	0893115	CERAMIC CHIP 15PF+-5% 50V
C0617	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0618	0893204	CERAMIC CHIP 470PF+-10% 50V
C0619	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0636	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0638	0893226	CERAMIC CHIP 0.15UF+80-20% 16V
C0639	0806153	ELECTROLYTIC 10UF 16V
C0644	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0645	0893008	CERAMIC CHIP 0.1UF +-10% 16V

SYMBOL-NO	P-NO	DESCRIPTION
C0646	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0647	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0648	0893211	CERAMIC CHIP 1500PF+-10% 50V
C0649	0893211	CERAMIC CHIP 1500PF+-10% 50V
C0650	0893211	CERAMIC CHIP 1500PF+-10% 50V
C0656	0806153	ELECTROLYTIC 10UF 16V
C0671	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0672	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0691	0893206	CERAMIC CHIP 680PF+-10% 50V
C0692	0893202	CERAMIC CHIP 330PF+-10% 50V
C0693	0893199	CERAMIC CHIP 220PF+-10% 50V
C0694	0893191	CERAMIC CHIP 6800PF+-10% 25V
C0695	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0696	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0901	0806174	ELECTROLYTIC 100UF 6.3V
C0902	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0905	0806168	ELECTROLYTIC 47UF 6.3V
C0906	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0907	0806175	ELECTROLYTIC 100UF 10V
C0908	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0909	0806174	ELECTROLYTIC 100UF 6.3V
C0910	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0911	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0915	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0916	0893118	CERAMIC CHIP 27PF+-5% 50V
C0917	0893119	CERAMIC CHIP 33PF+-5% 50V
C0918	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0919	0893119	CERAMIC CHIP 33PF+-5% 50V
C0920	0893126	CERAMIC CHIP 100PF+-5% 50V
C0921	0893131	CERAMIC CHIP 220PF+-5% 50V (TYPE620)
C0923	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0924	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0925	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0927	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0928	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0930	0806174	ELECTROLYTIC 100UF 6.3V
C0931	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0932	0806169	ELECTROLYTIC 47UF 16V
C0933	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0934	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0935	0806169	ELECTROLYTIC 47UF 16V
C0936	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0939	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0940	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C1002	0806169	ELECTROLYTIC 47UF 16V
C1003	0893044	CERAMIC CHIP 0.01UF+-10% 50V
C1004	0893234	CERAMIC CHIP 1500PF+80-20% 50V
C1005	0806163	ELECTROLYTIC 33UF 10V
C1006	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1101	0893117	CERAMIC CHIP 22PF+-5% 50V
C1102	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C1103	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C1104	0806018	ELECTROLYTIC 2.2UF 6.3V
C1106	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1107	0806168	ELECTROLYTIC 47UF 6.3V
C1108	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1109	0806169	ELECTROLYTIC 47UF 16V
C1110	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C1111	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1113	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1116	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1117	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1118	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1119	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1120	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1121	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1122	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1124	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1125	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1126	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1127	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1128	0893079	CERAMIC DISC 0.01UF+80-20% 50V
C1129	0893079	CERAMIC DISC 0.01UF+80-20% 50V
C1130	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C1131	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C1132	0893117	CERAMIC CHIP 22PF+-5% 50V
C1133	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1134	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1135	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1136	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1137	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1138	0893117	CERAMIC CHIP 22PF+-5% 50V
C1139	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1141	0806169	ELECTROLYTIC 47UF 16V
C1142	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1143	0806168	ELECTROLYTIC 47UF 6.3V
C1144	0202319	CERAMIC CHIP 22PF+-2% 50V
C1145	0893125	CERAMIC CHIP 82PF+-5% 50V
C1146	0893125	CERAMIC CHIP 82PF+-5% 50V
C1147	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1148	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1149	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1150	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1151	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1152	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1153	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1154	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1156	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1158	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1159	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1160	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1161	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1162	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1163	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1164	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1165	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1166	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1167	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1168	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1169	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1170	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1173	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1174	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1201	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1202	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1203	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1204	0893132	CERAMIC CHIP 270PF+-5% 50V
C1205	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1206	0893007	CERAMIC CHIP 0.082UF+-10% 16V
C1207	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C1208	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C1209	0893133	CERAMIC CHIP 330PF+-5% 50V
C1210	0893133	CERAMIC CHIP 330PF+-5% 50V
C1211	0893133	CERAMIC CHIP 330PF+-5% 50V
C1212	0893055	CERAMIC CHIP 0.1UF+80-20% 16V
C1301	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1302	0893215	CERAMIC CHIP 3300PF+-10% 50V
C1303	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1304	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1305	0893193	CERAMIC CHIP 0.01UF+-10% 25V

SYMBOL-NO	P-NO	DESCRIPTION
C1306	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1307	0893215	CERAMIC CHIP 3300PF+-10% 50V
C1308	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1309	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1310	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1311	0806169	ELECTROLYTIC 47UF 16V
C1312	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1313	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1317	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1318	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1319	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1320	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1401	0806157	ELECTROLYTIC 22UF 6.3V
C1402	0806157	ELECTROLYTIC 22UF 6.3V
C1403	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1404	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1405	0806167	ELECTROLYTIC 47UF 4V
C1406	0806167	ELECTROLYTIC 47UF 4V
C1407	0893209	CERAMIC CHIP 1200PF 50V
C1408	0893209	CERAMIC CHIP 1200PF 50V
C1409	0893209	CERAMIC CHIP 1200PF 50V
C1410	0893209	CERAMIC CHIP 1200PF 50V
C1411	0206647	ELECTROLYTIC 10UF 10V
C1412	0206647	ELECTROLYTIC 10UF 10V
C1413	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1414	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1415	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1416	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1417	0806157	ELECTROLYTIC 22UF 6.3V
C1418	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
R0010	0103930	CHIP RESISTOR 390 OHM+-5% 1/8W
R0011	0103838	RESISTOR CHIP 390 OHM+-5% 0.1W
R0101	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0102	0790007	CHIP RESISTOR 5.6 OHM+-5% 1/16W
R0103	0790007	CHIP RESISTOR 5.6 OHM+-5% 1/16W
R0104	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0105	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0106	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0107	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0108	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0109	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0110	0790076	CHIP RESISTOR 820KOHM+-5% 1/16W
R0111	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0112	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0113	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0114	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0115	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0116	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0117	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0119	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0120	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0121	0790008	CHIP RESISTOR 6.8 OHM+-5% 1/16W
R0122	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0123	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0124	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0125	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0127	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0128	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0129	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0130	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0132	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0133	0105681	CHIP RESISTOR 2.7KOHM+-1% 1/16W
R0138	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0140	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0141	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0142	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0143	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0144	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0145	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0146	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0147	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0148	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0149	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0150	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0151	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0152	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0154	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0156	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0157	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0158	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0159	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0160	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0161	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0163	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0164	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0165	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0167	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0168	0790065	CHIP RESISTOR 120KOHM+-5% 1/16W
R0170	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0171	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R0172	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0173	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0174	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0175	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0176	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0180	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R0181	0790063	CHIP RESISTOR 82KOHM+-5% 1/16W
R0182	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0183	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0184	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0185	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0186	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0187	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0188	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0190	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0191	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0192	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R0193	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0194	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0196	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0198	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0199	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0201	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0202	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0203	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0205	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0207	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0208	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0209	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0213	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0215	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0216	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0217	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0218	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0219	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0222	0790072	CHIP RESISTOR 390KOHM+-5% 1/16W
R0223	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0224	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0225	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0227	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION
R0228	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0229	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0236	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0239	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0240	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0241	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0243	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0244	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0245	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0246	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0247	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0248	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0253	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0254	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0255	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0257	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0258	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0259	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0260	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0261	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0265	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0267	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0268	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0270	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0271	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0272	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0274	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0292	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0293	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R0294	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0295	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0296	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0298	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0299	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0350	0104093	CHIP RESSISTOR 75 OHM+-5% 1/16W
R0351	0104093	CHIP RESSISTOR 75 OHM+-5% 1/16W
R0355	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0356	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0357	0105688	CHIP RESISTOR 2.2KOHM+-1% 1/16W
R0358	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0358	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W (620)
R0359	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W(621)
R0362	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0364	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0366	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0367	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0371	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R0373	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0374	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0390	0104093	CHIP RESSISTOR 75 OHM+-5% 1/16W
R0391	0104093	CHIP RESSISTOR 75 OHM+-5% 1/16W
R0392	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R0397	0104093	CHIP RESSISTOR 75 OHM+-5% 1/16W
R0401L	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0401R	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0402L	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0402R	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0403L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0403R	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0404L	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0404R	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0405	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0408	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0410	0104121	CHIP RESISTOR 27KOHM+-1% 1/10W
R0413L	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0413R	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0414	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0415	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0417L	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0417R	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0418L	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0418R	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0419L	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R0419R	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R0428	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0429L	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0429R	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0435	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0436L	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0436R	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0445	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0447	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0460	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R0461L	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0462L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0463L	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0464	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0465	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0466	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0467	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0468	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0469	0790073	CHIP RESISTOR 470KOHM+-5% 1/16W
R0470	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0501	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0502	0103835	CHIP RESISTOR 220 OHM+-5% 0.1W
R0503	0103835	CHIP RESISTOR 220 OHM+-5% 0.1W
R0506	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0507	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0508	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0509	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0551	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0552	0790074	CHIP RESISTOR 560KOHM+-5% 1/16W
R0553	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0558	0105691	CHIP RESISTOR 24KOHM+-1% 1/16W
R0560	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0563	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0564	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0565	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0570	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0571	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0575	0104297	CHIP RESISTOR 10KOHM+-0.5% 16V
R0577	0104292	CHIP RESISTOR 1.0KOHM+-0.5% 1/16W
R0578	0104301	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0583	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0584	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0586	AQ10271R	CHIP RESISTOR 100 OHM+-0.5% 1/16W
R0588	AQ10272R	CHIP RESISTOR 390 OHM+-0.5% 1/16W
R0591	AQ10274R	CHIP RESISTOR 46.4KOHM+-0.5% 1/16W
R0593	AQ10273R	CHIP RESISTOR 680 OHM+-0.5% 1/16W
R0594	0104301	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0601	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0602	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0603	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0606	0104503	CHIP RESISTOR 27KOHM+-1% 1/16W
R0609	0105706	CHIP RESISTOR 24KOHM+-5% 1/16W
R0610	0105691	CHIP RESISTOR 24KOHM+-1% 1/16W
R0611	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0612	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0613	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0614	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION
R0616	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0619	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0620	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0621	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0622	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0624	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0631	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0632	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0636	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0641	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0642	0105815	CHIP RESISTOR 0.47 OHM+-10% 1/4W
R0661	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0662	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0663	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0671	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0672	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0681	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0682	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0688	0104567	CHIP RESISTER 150KOHM+-0.1% 1/16W
R0689	0105675	CHIP RESISTOR 100KOHM+-1% 1/16W
R0691	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0692	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0693	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0694	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0695	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0696	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0697	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0698	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0699	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0715	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0718	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0720	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0728	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0729	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0730	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0731	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0737	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0901	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0902	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0903	0790073	CHIP RESISTOR 470KOHM+-5% 1/16W
R0904	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0905	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0906	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0907	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0908	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0909	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0910	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0911	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0912	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0913	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0914	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0915	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0916	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0917	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0918	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0919	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0920	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0921	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0922	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0923	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0924	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0925	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0926	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0929	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0930	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION
R0931	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0932	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0933	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0935	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0937	0104542	CHIP RESISTOR 10KOHM+-1% 1/16W
R0938	0104542	CHIP RESISTOR 10KOHM+-1% 1/16W
R0939	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0940	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0942	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0943	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0944	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0945	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0946	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0949	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0953	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0957	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0959	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0962	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0963	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0964	0104562	CHIP RESISTOR 39KOHM+-1% 1/16W
R0965	0104503	CHIP RESISTOR 27KOHM+-1% 1/16W
R0966	0104563	CHIP RESISTOR 47KOHM+-1% 1/16W
R0967	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0968	0104562	CHIP RESISTOR 39KOHM+-1% 1/16W
R0969	0104503	CHIP RESISTOR 27KOHM+-1% 1/16W
R0970	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0971	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0972	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0973	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0974	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0975	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0976	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W (620)
R0977	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0978	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0979	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0980	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0981	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0982	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0983	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0984	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0985	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0986	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0987	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0988	0790063	CHIP RESISTOR 82KOHM+-5% 1/16W
R0989	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0990	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0991	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0994	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R1001	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R1002	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1003	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1004	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1009	0103823	CHIP RESISTOR 220HM+-5% 0.1W
R1102	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1103	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1104	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1105	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1106	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1107	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R1108	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R1109	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R1110	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R1113	0790015	CHIP RESISTOR 22 OHM+-5% 1/16W
R1114	0104571	CHIP RESISTOR 3.9KOHM+-1% 1/16W
R1116	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION
R1117	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R1118	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R1119	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1120	0104545	CHIP RESISTOR 1.24KOHM+-1% 1/16W
R1121	0104558	CHIP RESISTOR 5.6KOHM+-1% 1/16W
R1122	0104563	CHIP RESISTOR 47KOHM+-1% 1/16W
R1123	0104554	CHIP RESISTOR 1KOHM+-1% 1/16W
R1124	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1125	0104558	CHIP RESISTOR 5.6KOHM+-1% 1/16W
R1126	0104573	CHIP RESISTOR 1.2KOHM+-1% 1/16W
R1130	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1131	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R1132	0104534	CHIP RESISTOR 1.8KOHM+-1% 1/16W
R1133	0104558	CHIP RESISTOR 5.6KOHM+-1% 1/16W
R1134	0104502	CHIP RESISTOR 820 OHM+-1% 1/16W
R1135	0104553	CHIP RESISTOR 15KOHM+-1% 1/16W
R1139	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1140	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1141	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R1142	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R1143	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1146	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1147	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1148	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1149	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1150	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1151	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1152	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1153	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R1158	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1159	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1162	0103841	CHIP RESISTOR 680 OHM+-5% 0.1W
R1164	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R1171	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R1172	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1201	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R1202	0790069	CHIP RESISTOR 0.27MOHM+-5% 1/16W
R1203	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1204	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1205	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1206	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1207	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1208	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1209	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1210	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1211	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1212	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1213	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1214	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1215	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1216	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1217	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1218	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1220	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R1221	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R1222	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1224	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R1301	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1302	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1303	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1304	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1306	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W
R1308	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1309	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1310	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W

SYMBOL-NO	P-NO	DESCRIPTION
R1313	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W
R1315	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1316	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1317	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W
R1322	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R1323	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R1330	0104579	CHIP RESISTOR 12KOHM+-1% 1/16W
R1331	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1332	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1335	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1336	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1401	0103821	CHIP RESISTOR 15 OHM+-5% 0.1W
R1402	0103821	CHIP RESISTOR 15 OHM+-5% 0.1W
R1403	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R1404	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R1405	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R1406	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R1407	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1408	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1409	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1410	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1411	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R1412	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R1413	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1414	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1416	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
RT0103	5040201	VARIABLE RESISTOR 470 OHM
RT0202	5040205	SEMI VARIABLE 22KOHM
RT0203	5040205	VARIABLE RESISTOR 22KOHM
RT0204	0104731	CHIP RESISTOR 5.6KOHM+-10% 1/16W
RT0205	5040204	VARIABLE RESISTOR 10KOHM
RT0206	0104159	CHIP RESISTER 1.5KOHM+-10% 1/8W
RT0207	5040205	VARIABLE RESISTOR 22KOHM
RT0209	5040205	VARIABLE RESISTOR 4.7KOHM
RT0210	5040201	VARIABLE RESISTOR 470 OHM
RT0211	0104159	CHIP RESISTER 1.5KOHM+-10% 1/8W
RT0212	5040202	SEMI VARIABLE 2.2KOHM
RT0214	5040204	SEMI VARIABLE 10KOHM
RT0215	5040204	VARIABLE RESISTOR 10KOHM
RT0216	0104731	CHIP RESISTOR 5.6KOHM+-10% 1/16W
RT0217	5040205	SEMI VARIABLE 22KOHM
D0001	CH10451	DIODE PLT-462T3
D0101	5337422	DIODE DA221
D0102	5337351	DIODE MA132WK
D0352	5337351	DIODE MA132WK
D0394	5337422	DIODE DA221
D0401	5337422	DIODE DA221
D0551	5337372	DIODE SB07-03C
D0554	5337352	DIODE MA132WA
D0556	5326021	DIODE MA160-MID
D0601	CC10291R	DIODE 1SS353
D0901	CC10291R	DIODE 1SS353
D0902	CC10291R	DIODE 1SS353
D0905	CC10291R	DIODE 1SS353
D1001	CC10291R	DIODE 1SS353
D1101	5337372	DIODE SB07-03C
D1102	CC10291R	DIODE 1SS353
D1103	5328305	DIODE MA151WA
D1104	5382911	DIODE LT1082A
D1303	5337422	DIODE DA221
D1403	5328305	DIODE MA151WA
IC0101	1366631	IC HA118189MP
IC0102	CK13461R	IC UPC5023GS-101-E1
IC0201	1366924	IC HA118192AF
IC0202	CK12041R	IC CXL5516N

SYMBOL-NO	P-NO	DESCRIPTION
IC0203	1352331	IC CXL5507M
IC0204	CK13471R	IC UPC5023GS-104-E1
IC0401	CK12241	IC HA118193F
IC0551	1356251	IC TL1464IPT
IC0601	CK12151R	IC UPC5023GS-079-E1
IC0631	CK14251R	IC LB1888V
IC0671	1356651	IC BA6417F
IC0901	CK12177U	IC CXP87240A-107Q
IC0902	1352582	IC S-84206F
IC0903	1366081	IC HD74HCT125T
IC0904	1366612	IC XLU5949AFS
IC0907	CJ10201	TRANSISTOR GP1U261X
IC1001	UE11253	CCD IMAGE SENSOR ASSY
IC1101	1366681	IC HA118184F
IC1102	1365392	IC HD49319AF
IC1103	CK12132U	IC HG51CS035TEA
IC1104	CK12061R	IC UPD16510GR
IC1106	CK13801U	IC HD6433042T13F
IC1107	CK14171R	IC MX25S67MR
IC1201	CK13791R	IC UPC5023GS-105-E1
IC1301	1366804	IC MPC17AT85VMEL
IC1302	1366804	IC MPC17AT85VMEL
IC1401	FU10171	GYRO SENSOR ENC-05EA-02
IC1402	FU10172	GYRO SENSOR ENC-05EB-02
IC1403	CK11721R	IC NJU7032M
IC1404	1359931	IC TC4W66F
Q0001	1322341	TRANSISTOR PT4810F
Q0002	5327521	PHOTO TRANSISTOR SPI-315-C
Q0003	5327521	PHOTO TRANSISTOR SPI-315-C
Q0004	1322341	TRANSISTOR PT4810F
Q0101	1323301	TRANSISTOR 2SB1219
Q0102	1323231	TRANSISTOR 2SB1462
Q0103	1323231	TRANSISTOR 2SB1462
Q0104	1323181	TRANSISTOR XP4213
Q0105	1323301	TRANSISTOR 2SB1219
Q0107	1323231	TRANSISTOR 2SB1462
Q0108	1323271	TRANSISTOR DTC144EE
Q0109	1323231	TRANSISTOR 2SB1462
Q0110	5326471	TRANSISTOR 2SB1218 (R)
Q0111	1323283	TRANSISTOR UMH1N
Q0112	1323321	TRANSISTOR 2SD2216
Q0116	1323173	TRANSISTOR UN9212
Q0117	1323173	TRANSISTOR UN9212
Q0120	5326454	TRANSISTOR DTA124EU
Q0123	1323321	TRANSISTOR 2SD2216
Q0140	1323241	TRANSISTOR XP1213
Q0170	1323301	TRANSISTOR 2SB1219
Q0171	1323253	TRANSISTOR XP4401
Q0173	1323253	TRANSISTOR XP4401
Q0175	1323321	TRANSISTOR 2SD2216
Q0176	1323231	TRANSISTOR 2SB1462
Q0201	1323241	TRANSISTOR XP1213
Q0202	1323271	TRANSISTOR DTC144EE
Q0203	1323241	TRANSISTOR XP1213
Q0206	1323253	TRANSISTOR XP4401
Q0208	1323241	TRANSISTOR XP1213
Q0209	1323241	TRANSISTOR XP1213
Q0210	1323321	TRANSISTOR 2SD2216
Q0216	1323173	TRANSISTOR UN9212
Q0217	1323271	TRANSISTOR DTC144EE
Q0219	1323241	TRANSISTOR XP1213
Q0221	1323241	TRANSISTOR XP1213
Q0224	1323181	TRANSISTOR XP4213
Q0225	1323231	TRANSISTOR 2SB1462
Q0226	1323271	TRANSISTOR DTC144EE
Q0228	1323271	TRANSISTOR DTC144EE
Q0229	1323241	TRANSISTOR XP1213
Q0231	1323271	TRANSISTOR DTC144EE
Q0232	5326103	TRANSISTOR FMS1
Q0350	1323321	TRANSISTOR 2SD2216
Q0352	1323231	TRANSISTOR 2SB1462
Q0353	1323361	TRANSISTOR XP1501
Q0356	1323321	TRANSISTOR 2SD2216
Q0390	1323271	TRANSISTOR DTC144EE
Q0401L	1323171	TRANSISTOR UN9213
Q0401R	1323171	TRANSISTOR UN9213
Q0402	1323171	TRANSISTOR UN9213
Q0403L	1323321	TRANSISTOR 2SD2216
Q0403R	1323321	TRANSISTOR 2SD2216
Q0404	1323321	TRANSISTOR 2SD2216
Q0407	1323171	TRANSISTOR UN9213
Q0408L	1323361	TRANSISTOR XP1501
Q0409	1323321	TRANSISTOR 2SD2216
Q0410	1323321	TRANSISTOR 2SD2216
Q0501	5326513	TRANSISTOR 2SB1188 (R)
Q0502	1323321	TRANSISTOR 2SD2216
Q0551	CA10271R	TRANSISTOR 2SB1424
Q0553	1308011	TRANSISTOR MPL1
Q0554	5326502	TRANSISTOR 2SD1766 (R)
Q0556	CA10271R	TRANSISTOR 2SB1424
Q0557	1323321	TRANSISTOR 2SD2216
Q0602	1323321	TRANSISTOR 2SD2216
Q0691	1323321	TRANSISTOR 2SD2216
Q0692	CA10271R	TRANSISTOR 2SB1424
Q0901	1323251	TRANSISTOR XP4601
Q0903	1323081	TRANSISTOR 2SA1036K
Q0904	1323231	TRANSISTOR 2SB1462
Q0905	1323321	TRANSISTOR 2SD2216
Q0908	1323271	TRANSISTOR DTC144EE
Q1001	5328221	TRANSISTOR 2SC2620-QC
Q1101	CA10583R	TRANSISTOR 2SB709A
Q1103	5328192	TRANSISTOR 2SC2462LD
Q1104	CA10583R	TRANSISTOR 2SB709A
Q1105	CA10583R	TRANSISTOR 2SB709A
Q1106	CA10583R	TRANSISTOR 2SB709A
Q1107	5328192	TRANSISTOR 2SC2462LD
Q1109	1323271	TRANSISTOR DTC144EE
Q1110	5328192	TRANSISTOR 2SC2462LD
Q1201	5328192	TRANSISTOR 2SC2462LD
Q1202	1323141	TRANSISTOR 2SC2411K
Q1401	1323271	TRANSISTOR DTC144EE
△T0551	5148333	TRANSFORMAR, POWER
L0101	0773003	COIL 47UH
L0102	0773094	CHOKE COIL 100UH+-10%
L0103	0773124	CHOKE COIL 27UH+-5%
L0104	0773003	COIL 47UH
L0105	0773117	CHOKE COIL 8.2UH+-5%
L0107	0773134	CHOKE COIL 150UH+-5%
L0108	0773135	CHOKE COIL 180UH+-5%
L0109	5129255	COIL 470UH
L0110	0773123	CHOKE COIL 22UH+-5%
L0111	5129256	COIL 33UH
L0170	0773091	CHOKE COIL 33UH
L0171	0773091	CHOKE COIL 33UH
L0172	0773129	CHOKE COIL 68UH+-5%
L0201	0773124	CHOKE COIL 27UH+-5%
L0203	0773118	CHOKE COIL 10UH+-5%
L0204	0773133	CHOKE COIL 120UH+-5%
L0206	0773088	CHOKE COIL 15UH
L0207	0773129	CHOKE COIL 68UH+-5%

SYMBOL-NO	P-NO	DESCRIPTION	
L0350	0773003	COIL 47UH	
L0401	0773003	COIL 47UH	
L0552	BA10127R	COIL 10UH	
L0553	BA10128R	COIL 22UH	
L0554	BA10135R	COIL 10UH	
L0556	BA10127R	COIL 10UH	
L0558	BA10129R	COIL 47UH	
L0560	0773001	CHOCE COIL 10UH+-10%	
L0561	0773004	COIL 100UH	
L0562	0773004	COIL 100UH	
L0601	0773087	CHOKE COIL 10UH+-10%	
L0901	0773004	COIL 100UH	
L0902	0773121	CHOKE COIL 15UH+-5%	
L0903	0773088	CHOKE COIL 15UH	(TYPE620)
L1101	0773003	COIL 47UH	
L1102	0773003	COIL 47UH	
L1103	0773001	CHOCE COIL 10UH+-10%	
L1106	0773094	CHOKE COIL 100UH+-10%	
L1109	0773001	CHOCE COIL 10UH+-10%	
L1110	0773001	CHOCE COIL 10UH+-10%	
L1301	0773001	CHOCE COIL 10UH+-10%	
L1302	0773001	CHOCE COIL 10UH+-10%	
X0201	1930211	CRYSTAL	
X0901	1930171	CRYSTAL	
X0902	BL10311R	CRYSTAL	
X1101	1930094	CRYSTAL	
BL0501	BV10201R	CHOKE COIL	
CN0001	5845867	CONNECTOR	
CN0502	5847081	CONNECTOR	
CN0503	5845861	CONNECTOR	
CN0901	1880371	CONNECTOR	
CP0202	BE10231R	LC FILTER	
CP0203	BE10341R	FILTER, BAND PASS	
CP0204	BE10343R	FILTER, BAND PASS	
CP0205	5172734	DELAY LINE	
CP0206	5172735	FILTER, LOW PASS	
CP1101	5172676	FILTER, LOW PASS	
△F0501	5723232	FUSE 2A	
△F0502	5723231	FUSE 1.6A	
JK0200	5695291	SOCKT	
JK0201	ES10242	JACK, AV	
JK0501	5693601	DC JACK	
PG0001	5666921	MINI PLUG	
PG0101	EA10501R	PLUG	
PG0401R	5668673	MINI PLUG	
PG0501	1830322	PLUG	
PG0502	5668671	MINI PLUG	
PG0503	5668675	PLUG	
PG0551	5669037	MINI PLUG	
PG0601	5692362	MINI PLUG	
PG0602	EA10641R	PLUG	
PG0603	5668753	MINI PLUG	
PG0604	5668671	MINI PLUG	
PG0901	5668572	MINI PLUG	
PG0902	5668752	MINI PLUG	
PG0903	5669193	MINI PLUG	(TYPE620)
PG0903	5669194	PLUG	(TYPE720)
PG1001	1830344	PLUG	
PG1101	1830343	PLUG	
PG1102	1830351	PLUG	
PG1301	EA10407R	CONNECTOR	
△QF1301	FM10112R	FUSE 0.2A	
S0003	5636171	SWITCH	
S0004	5636171	SWITCH	
S0005	5636171	SWITCH	

SYMBOL-NO	P-NO	DESCRIPTION
S0006	5635331	SWITCH
S0007	5613523	SWITCH
S0501	FD10201	SWITCH
S0502	FE10151	SWITCH
SW0901	1742012	SWITCH
		B/W EVF [EMA0] SECTION (TYPE620)
C2001	0806169	ELECTROLYTIC 47UF 16V
C2002	0806169	ELECTROLYTIC 47UF 16V
C2003	0806146	ELECTROLYTIC 2.2UF 50V
C2004	0268437	POLYPROPYLENE 4700PF+-5%50V
C2005	0256871	ELECTROLYTIC 47UF 25V
C2006	0249655	CERAMIC CHIP 1000PF+-10% 1000V
C2007	0249656	CERAMIC CHIP 1000PF+-10% 500V
C2008	0806146	ELECTROLYTIC 2.2UF 50V
C2009	0893086	CERAMIC CHIP 0.1UF+80-20% 50V
C2011	0209852	CERAMIC CHIP 18DPF+-5% 50V
C2012	0893086	CERAMIC CHIP 0.1UF+80-20% 50V
C2013	0893086	CERAMIC CHIP 0.1UF+80-20% 50V
C2014	0268521	MYLAR 0.1UF+-10% 50V
C2015	0202151	CERAMIC CHIP 2200PF+-5% 50V
C2016	0893044	CERAMIC CHIP 0.01UF+-10% 50V
C2017	0806145	ELECTROLYTIC 1UF 50V
C2018	0893062	CERAMIC CHIP 1UF+80-20% 16V
R2001	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R2002	0103869	CHIP RESISTOR 150KOHM+-5% 0.1W
R2003	0103876	CHIP RESISTOR 560KOHM+-5% 0.1W
R2004	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R2005	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R2006	0103819	CHIP RESISTOR 10 OHM+-5% 0.1W
R2007	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R2008	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R2009	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R2011	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R2012	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R2013	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R2014	0103846	CHIP RESISTOR 1.8KOHM+-5% 0.1W
R2015	0103862	CHIP RESISTOR 39KOHM+-5% 0.1W
R2016	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W
R2017	0103846	CHIP RESISTOR 1.8KOHM+-5% 0.1W
R2018	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R2019	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R2020	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R2021	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R2022	0103831	CHIP RESISTOR 100 OHM+-5% 0.1W
R2023	0103882	JUMPER CHIP RESISTOR
R2024	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R2025	0103874	CHIP RESISTOR 390KOHM+-5% 0.1W
R2026	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R2027	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R2028	0103972	CHIP JUMPER
RT2001	5035204	SEMI VARIABLE 2.2MOHM
RT2002	5030251	SEMI VARIABLE 1MOHM
RT2003	5040103	SEMI VARIABLE 470 OHM
D2001	5337133	DIODE MA141K
D2002	5337321	DIODE MA199
IC2001	1365881	IC HA118179F
Q2001	5323831	TRANSISTOR 2SD974
Q2002	5326682	TRANSISTOR XN1B301
T2001	5240566	TRANSFORMER
L2001	0773003	COIL 47UH
L2002	5244017	COIL
CS2001	5887005	SOCKET
PG2001	5669631	CONNECTOR

SYMBOL-NO	P-NO	DESCRIPTION
PG2002	5668469	PLUG
		COLOR EVE [CRE] SECTION (TYPE720)
C2102	0893062	CERAMIC CHIP 1UF+80-20% 16V
C2104	0893062	CERAMIC CHIP 1UF+80-20% 16V
C2105	0893191	CERAMIC CHIP 6800PF+-10% 25V
C2106	0893062	CERAMIC CHIP 1UF+80-20% 16V
C2108	0806153	ELECTROLYTIC 10UF 16V
C2110	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2113	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C2114	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2119	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C2120	0893059	CERAMIC CHIP 0.47UF+80-20% 16V
C2121	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2122	0893231	CERAMIC CHIP 0.068UF+80-20% 25V
C2123	0893231	CERAMIC CHIP 0.068UF+80-20% 25V
C2124	0893231	CERAMIC CHIP 0.068UF+80-20% 25V
C2136	0893062	CERAMIC CHIP 1UF+80-20% 16V
C2137	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C2138	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C2141	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2181	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C2182	0806158	ELECTROLYTIC 22UF 16V
C2183	0806174	ELECTROLYTIC 100UF 6.3V
C2184	0806149	ELECTROLYTIC 4.7UF 25V
C2185	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C2187	0806153	ELECTROLYTIC 10UF 16V
C2203	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2204	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C2205	0893175	CERAMIC CHIP 1000PF+-5% 50V
C2207	0893175	CERAMIC CHIP 1000PF+-5% 50V
C2211	0206673	ELECTROLYTIC 33UF 6.3V
C2212	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2213	0893175	CERAMIC CHIP 1000PF+-5% 50V
C2214	0893127	CERAMIC CHIP 120PF+-5% 50V
C2215	0893217	CERAMIC CHIP 4700PF+-10% 50V
C2216	0806019	ELECTROLYTIC 2.2UF 10V
C2217	0202025	CERAMIC DISC 4700PF+-5% 50V
C2218	0806149	ELECTROLYTIC 4.7UF 25V
C2219	0893154	CERAMIC CHIP 27PF+-5% 50V
C2220	0893154	CERAMIC CHIP 27PF+-5% 50V
C2221	0893154	CERAMIC CHIP 27PF+-5% 50V
C2222	0893154	CERAMIC CHIP 27PF+-5% 50V
C2223	0893154	CERAMIC CHIP 27PF+-5% 50V
C2224	0893154	CERAMIC CHIP 27PF+-5% 50V
C2225	0893154	CERAMIC CHIP 27PF+-5% 50V
C2226	0893154	CERAMIC CHIP 27PF+-5% 50V
C2227	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
R2101	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R2102	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R2103	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R2104	0105203	CHIP RESISTOR 18KOHM+-0.5% 1/16W
R2105	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R2106	0790065	CHIP RESISTOR 120KOHM+-5% 1/16W
R2107	0790065	CHIP RESISTOR 120KOHM+-5% 1/16W
R2108	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R2109	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R2110	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R2111	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R2112	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R2113	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R2115	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R2118	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R2119	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R2120	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R2121	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R2122	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R2125	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R2126	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R2128	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R2129	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R2139	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R2140	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R2142	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R2143	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R2148	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R2151	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R2153	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R2154	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R2181	0105593	CHIP RESISTOR 680 OHM+-5% 1/2W
R2182	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R2184	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R2202	0105697	CHIP RESISTOR 390KOHM+-1% 1/16W
R2203	0105197	CHIP RESISTOR 22KOHM+-0.5% 1/16W
R2204	0105202	CHIP RESISTOR 39KOHM+-0.5% 1/16W
R2207	0104514	CHIP RESISTOR 1.96KOHM+-1% 1/16W
R2208	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R2209	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R2210	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R2211	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R2212	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R2213	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R2215	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R2216	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R2217	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
RT2101	AW10168	TIMMER RESISTOR
RT2102	AW10168	TIMMER RESISTOR
RT2103	AW10168	TIMMER RESISTOR
RT2104	5040107	SEMI VARIABLE 10KOHM
RT2105	5040106	SEMI VARIABLE 4.7KOHM
RT2106	5040106	SEMI VARIABLE 4.7KOHM
RT2181	5040106	SEMI VARIABLE 4.7KOHM
RT2201	5040108	SEMI VARIABLE
D2101	5337354	DIODE MA133
D2102	5337354	DIODE MA133
D2103	5337354	DIODE MA133
D2201	5337031	DIODE 1SV201
D2202	5337353	DIODE MA132K
IC2101	CK10522U	IC IR3Y18A
IC2181	CK11961R	IC NJM431U
IC2202	1366341	IC ETM3030TOA
L2181	0773094	CHOKE COIL 100UH+-10%
L2182	0773094	CHOKE COIL 100UH+-10%
L2203	BA10131R	COIL 220UH
L2204	0773121	CHOKE COIL 15UH+-5%
X2101	BL10111R	CRYSTAL
CP2101	5172474	TRAP, COIL
PG2102	1830022	PLUG
PG2104	1830022	PLUG
PG2201	EA10348R	CONNECTOR
PG2203	1830191	PLUG

CHAPTER 6 SCHEMATIC AND CIRCUIT BOARD DIAGRAMS

Cautions when using schematic diagrams

Caution for safety
The parts marked ⚠ are critical for safety. Be sure to use the specified parts to ensure safety when replacing them.

1. Values in schematic diagrams
The values, dielectric strength (power capacitance) and tolerances of the resistors (excluding variable resistors) and capacitors are indicated in the schematic diagrams using abbreviations.

[Resistors]

Item	Indication
Value	No indication ····· Ω K ····· kΩ M ····· MΩ
Tolerance	No indication ····· ±5% (All tolerances other than ±5% are indicated in the schematic diagrams)
Power capacitance	No indication ····· 1/8W (1/16W for leadless resistors without indication) All capacitances other than the above are indicated in the schematic diagrams.

[Capacitors]

Item	Indication
Value	No indication ····· μF P ····· pF
Dielectric strengh	No indication ····· 50V (All dielectric strengths other than 50V are indicated in the schematic diagrams.)

[Coils]

Item	Indication
Value	μ ····· μH m ····· mH

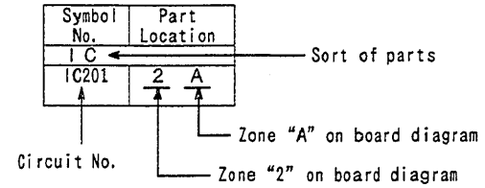
2. Markings in schematic diagrams
(1) Parts marked "■" with circuit numbers in the schematic diagrams are discrete parts.
(2) Parts marked "❶" with circuit numbers in the schematic diagrams are leadless parts.

Cautions when using circuit board diagrams

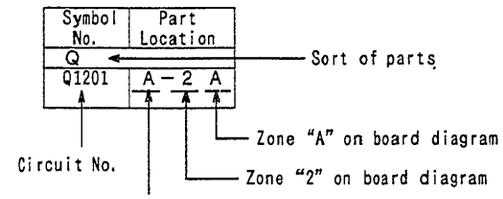
1. Identifications of sides A/B in circuit board diagrams
(1) Board having a pattern on one side and parts on both sides.
Side A: Shows discrete parts, viewed from the pattern side.
Side B: Shows leadless parts, viewed from the pattern side.
(2) Board having patterns on both sides and parts on both sides.
Side A: Shows parts and patterns which can be seen when the case is opened.
Side B: Shows parts and the pattern on the back of side A.

2. Table for indexing locations of parts
This table shows locations of each part on the circuit board diagrams. The locations are indicated using the guide scales on the external lines of diagrams.

(1) In case of one-layer board

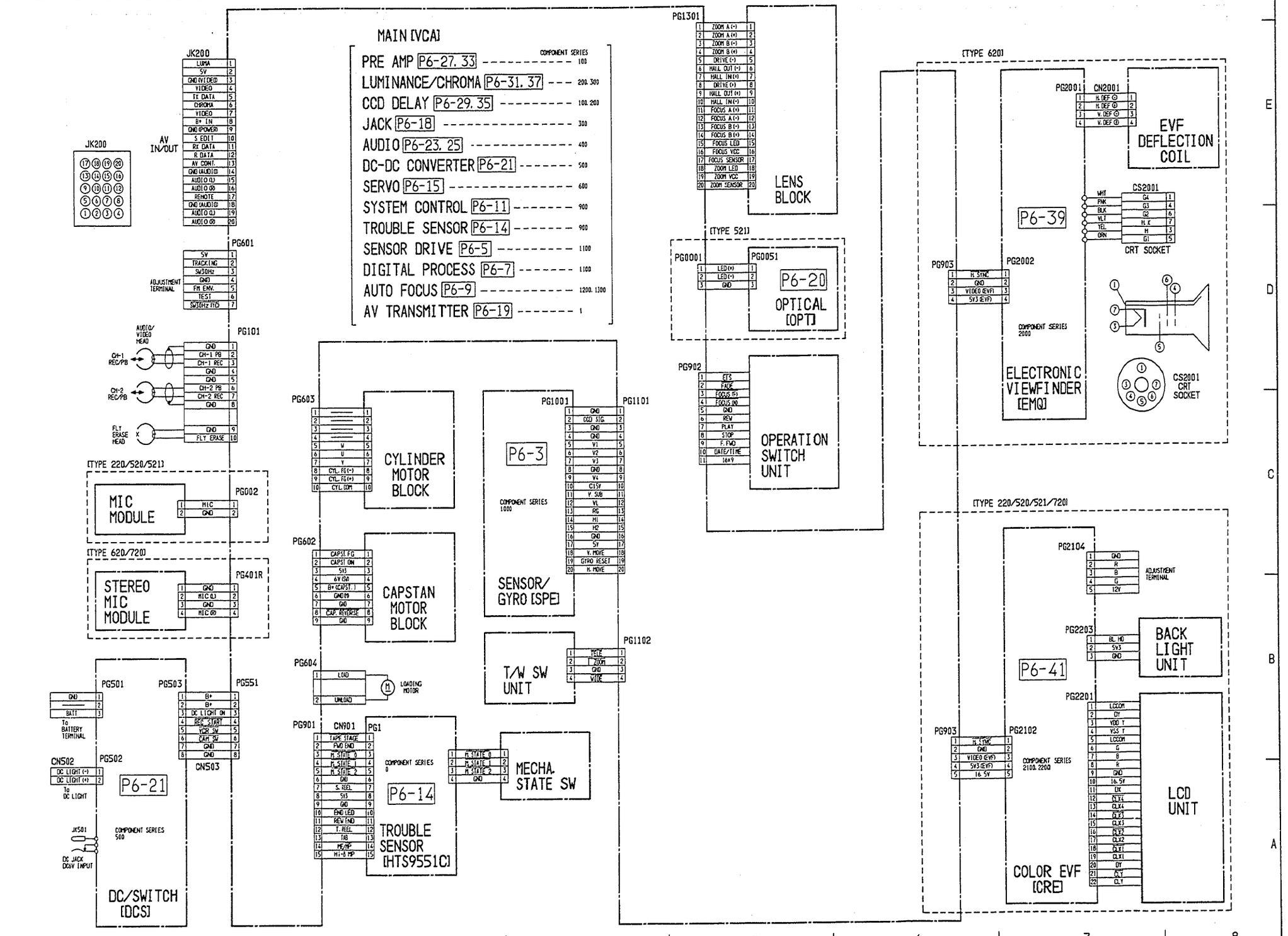


(2) In case of side A/B indication board

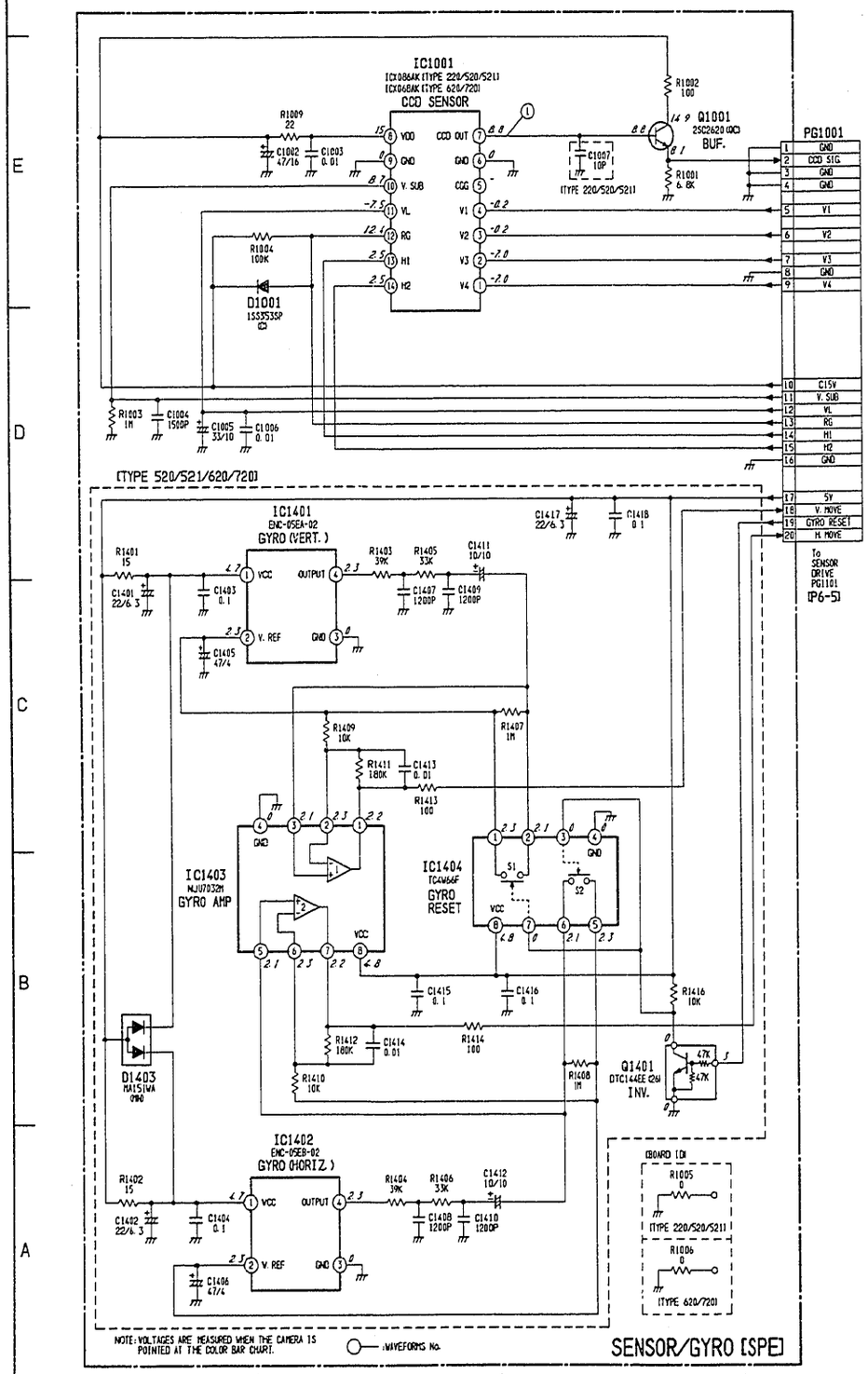


A: Shows side A
B: Shows side B

INTERNAL WIRING DIAGRAM



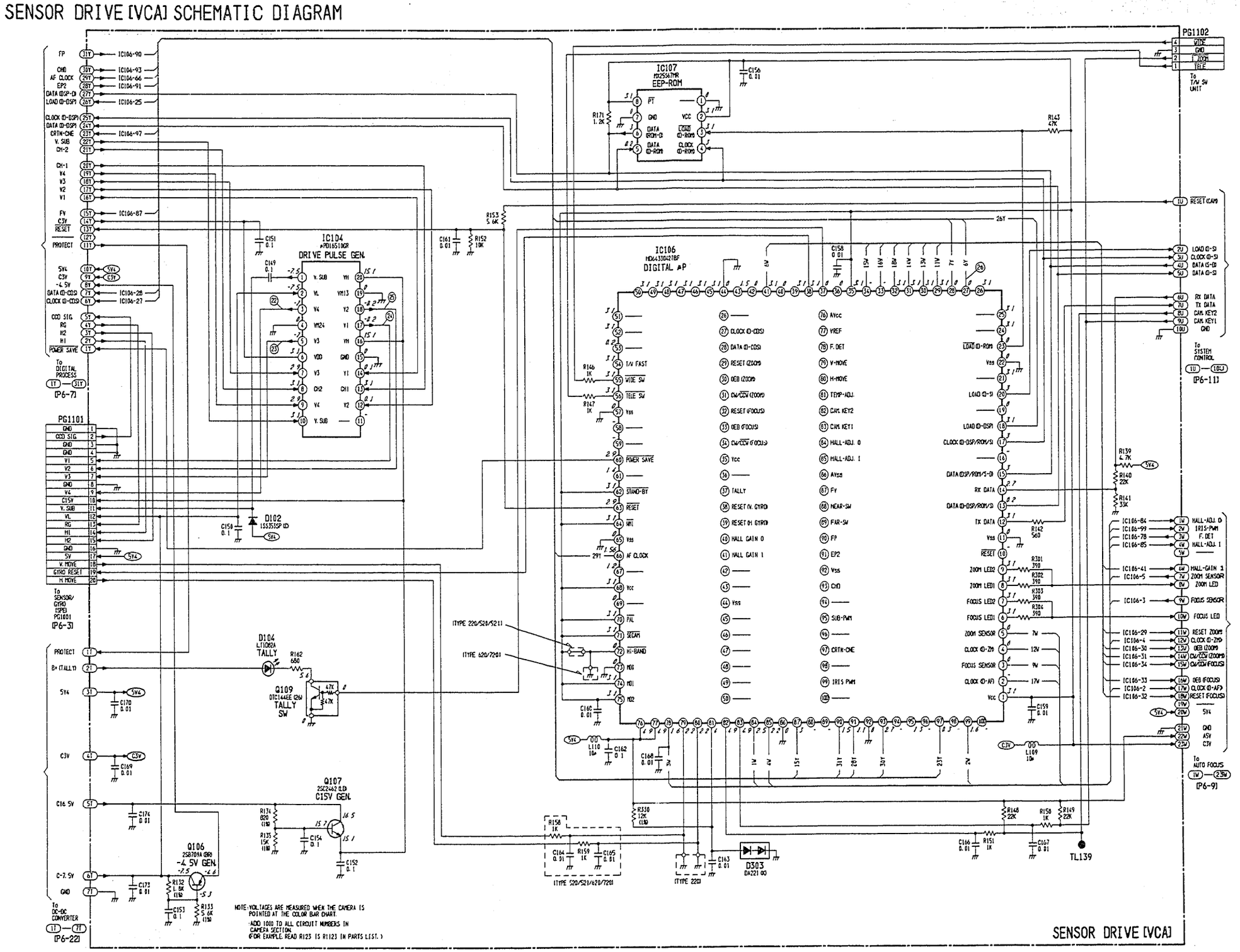
SENSOR/GYRO [SPE] SCHEMATIC DIAGRAM



CAMERA SECTION WAVEFORMS

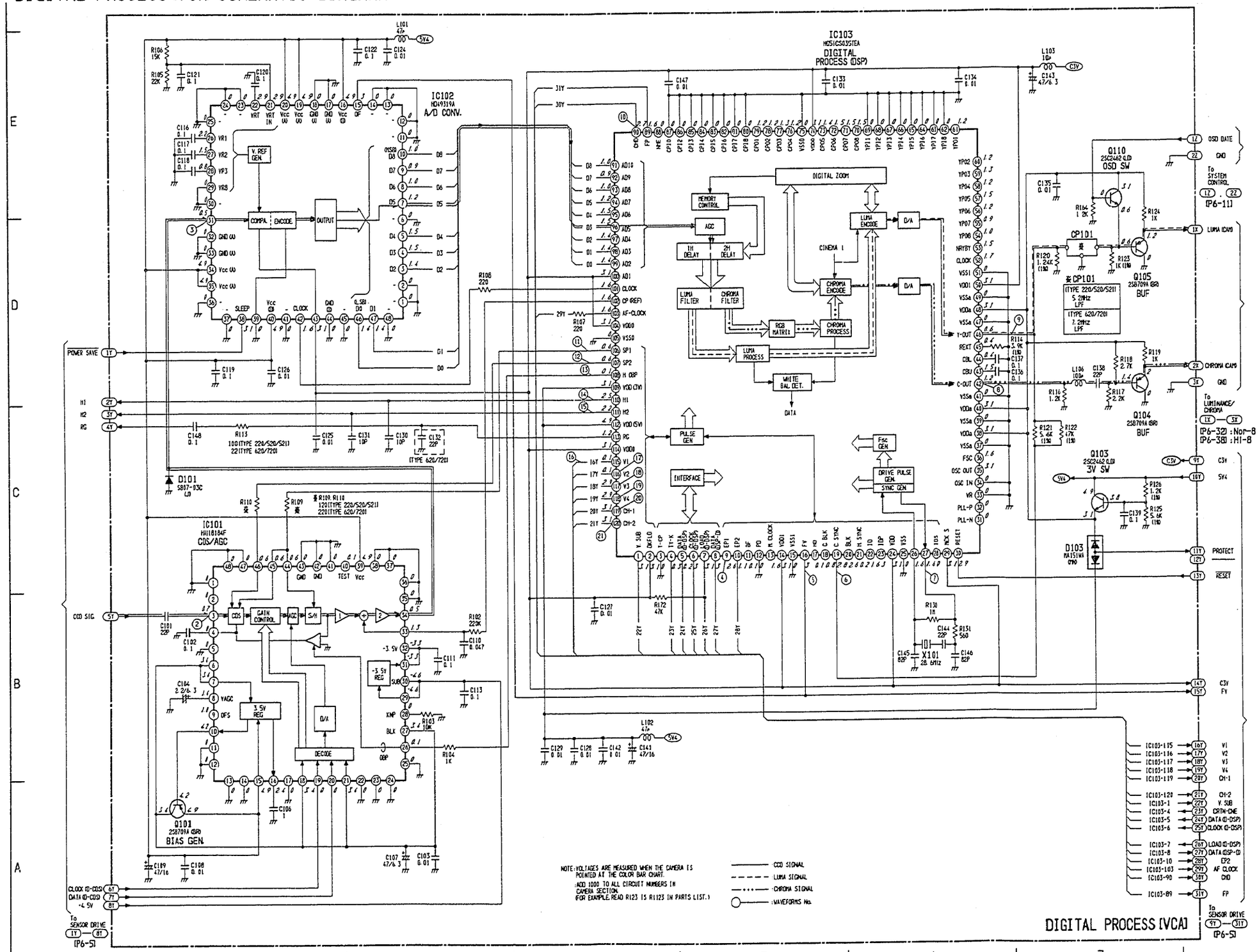
1-A IC1001-7 700mVp-p 0.2V/20.0 μ sec. cm COLOR CHART	8-A IC1103-42 730mVp-p 0.2V/20.0 μ sec. cm COLOR CHART	15-A IC1103-111 6.0Vp-p 2V/100nsec. cm COLOR CHART	22-A IC1104-3 8.0Vp-p 2V/20.0 μ sec. cm COLOR CHART
2-A IC1101-3 400mVp-p 0.2V/20.0 μ sec. cm COLOR CHART	9-A IC1103-46 1.0Vp-p 0.2V/20.0 μ sec. cm COLOR CHART	16-A IC1103-115 3.4Vp-p 1V/20.0 μ sec. cm COLOR CHART	23-A IC1104-5 7.0Vp-p 2V/20.0 μ sec. cm COLOR CHART
3-A IC1102-31 1.6Vp-p 0.5V/20.0 μ sec. cm COLOR CHART	10-A IC1103-90 3.4Vp-p 1V/20.0 μ sec. cm COLOR CHART	17-A IC1103-116 3.4Vp-p 1V/20.0 μ sec. cm COLOR CHART	24-A IC1104-17 7.0Vp-p 2V/20.0 μ sec. cm COLOR CHART
4-A IC1103-9 3.5Vp-p 1V/20.0 μ sec. cm COLOR CHART	11-A IC1103-106 3.5Vp-p 1V/50.0nsec. cm COLOR CHART	18-A IC1103-117 3.4Vp-p 1V/20.0 μ sec. cm COLOR CHART	25-A IC1104-18 8.0Vp-p 2V/20.0 μ sec. cm COLOR CHART
5-A IC1103-16 3.4Vp-p 1V/5.0msec. cm COLOR CHART	12-A IC1103-107 3.5Vp-p 1V/50.0nsec. cm COLOR CHART	19-A IC1103-118 3.4Vp-p 1V/20.0 μ sec. cm COLOR CHART	26-A IC1106-27 3.4Vp-p 1V/5.0msec. cm COLOR CHART
6-A IC1103-19 3.4Vp-p 1V/20.0 μ sec. cm COLOR CHART	13-A IC1103-108 3.4Vp-p 1V/20.0 μ sec. cm COLOR CHART	20-A IC1103-119 3.4Vp-p 1V/5.0msec. cm COLOR CHART	
7-A IC1103-27 1.8Vp-p 0.5V/20.0nsec. cm COLOR CHART	14-A IC1103-110 6.0Vp-p 2V/100nsec. cm COLOR CHART	21-A IC1103-120 3.4Vp-p 1V/5.0msec. cm COLOR CHART	

SENSOR DRIVE [VCA] SCHEMATIC DIAGRAM



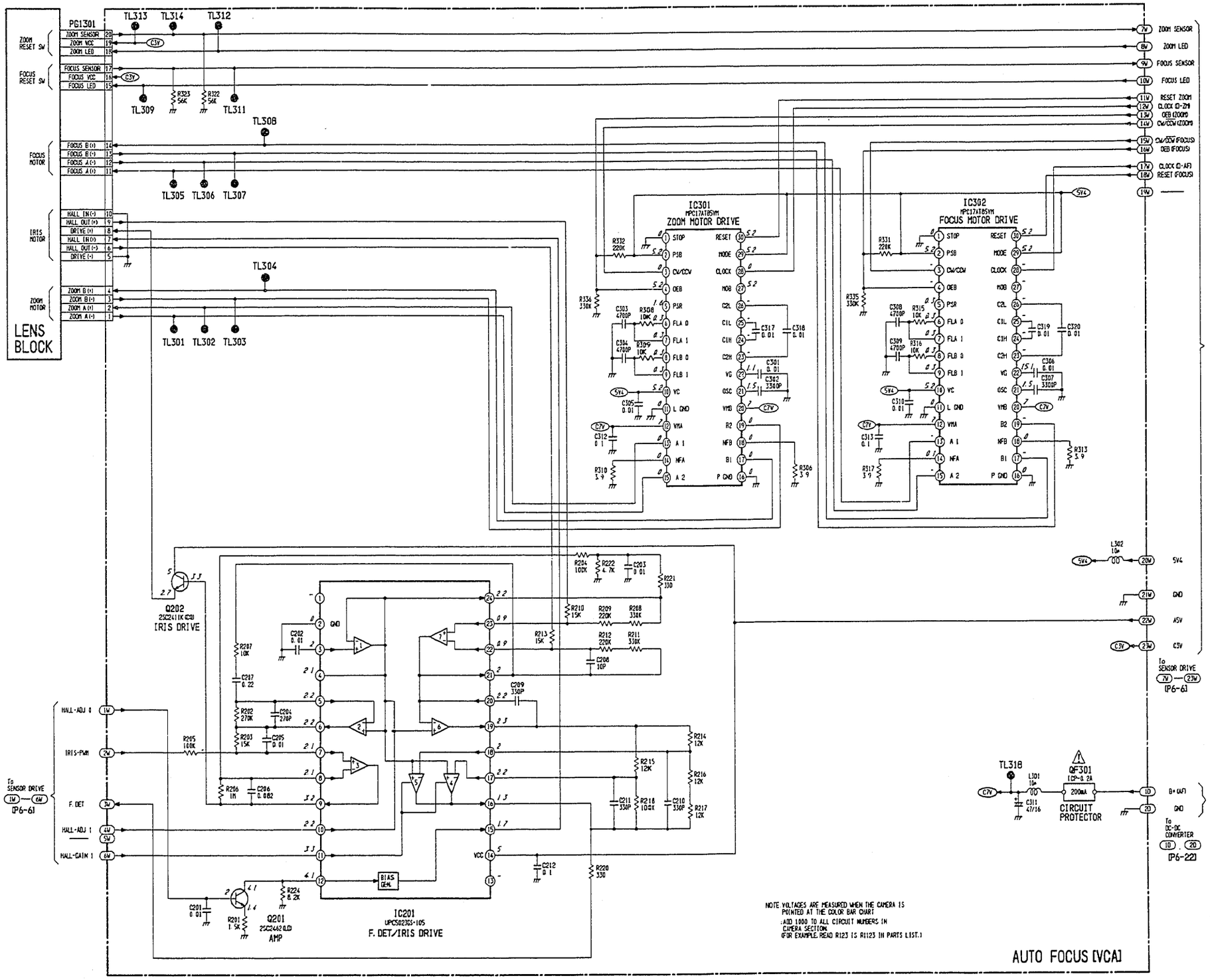
SENSOR DRIVE 6-5 6-6 SENSOR DRIVE

DIGITAL PROCESS [VCA] SCHEMATIC DIAGRAM

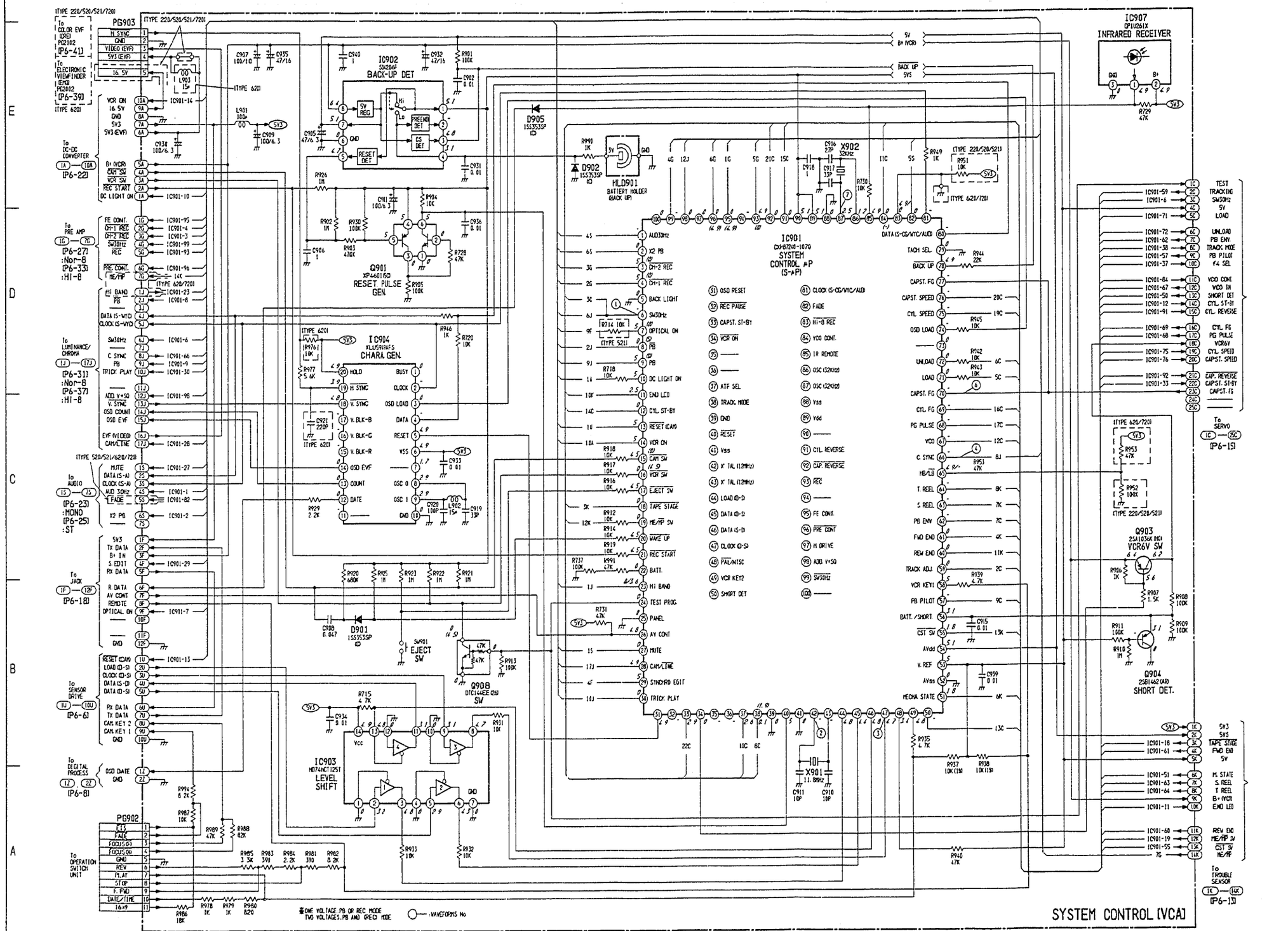


DIGITAL PROCESS 6-7 6-8 DIGITAL PROCESS

AUTO FOCUS [VCA] SCHEMATIC DIAGRAM

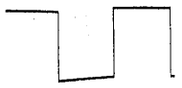


SYSTEM CONTROL [VCA] SCHEMATIC DIAGRAM

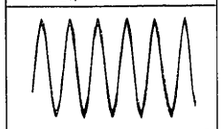


SYSTEM CONTROL SECTION WAVEFORMS

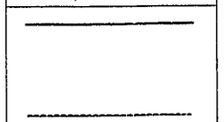
1-A IC901-6 5.2Vp-p
1V/5.0msec. cm
REC/PLAY



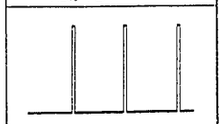
2-A IC901-42 4.4Vp-p
1V/50.0nsec. cm
REC/PLAY



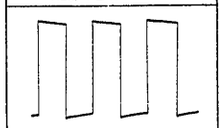
3-A IC901-47 5.0Vp-p
1V/20.0 μ sec. cm
REC/PLAY



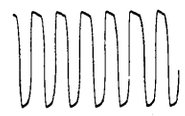
4-A IC901-66 5.0Vp-p
1V/20.0 μ sec. cm
REC/PLAY



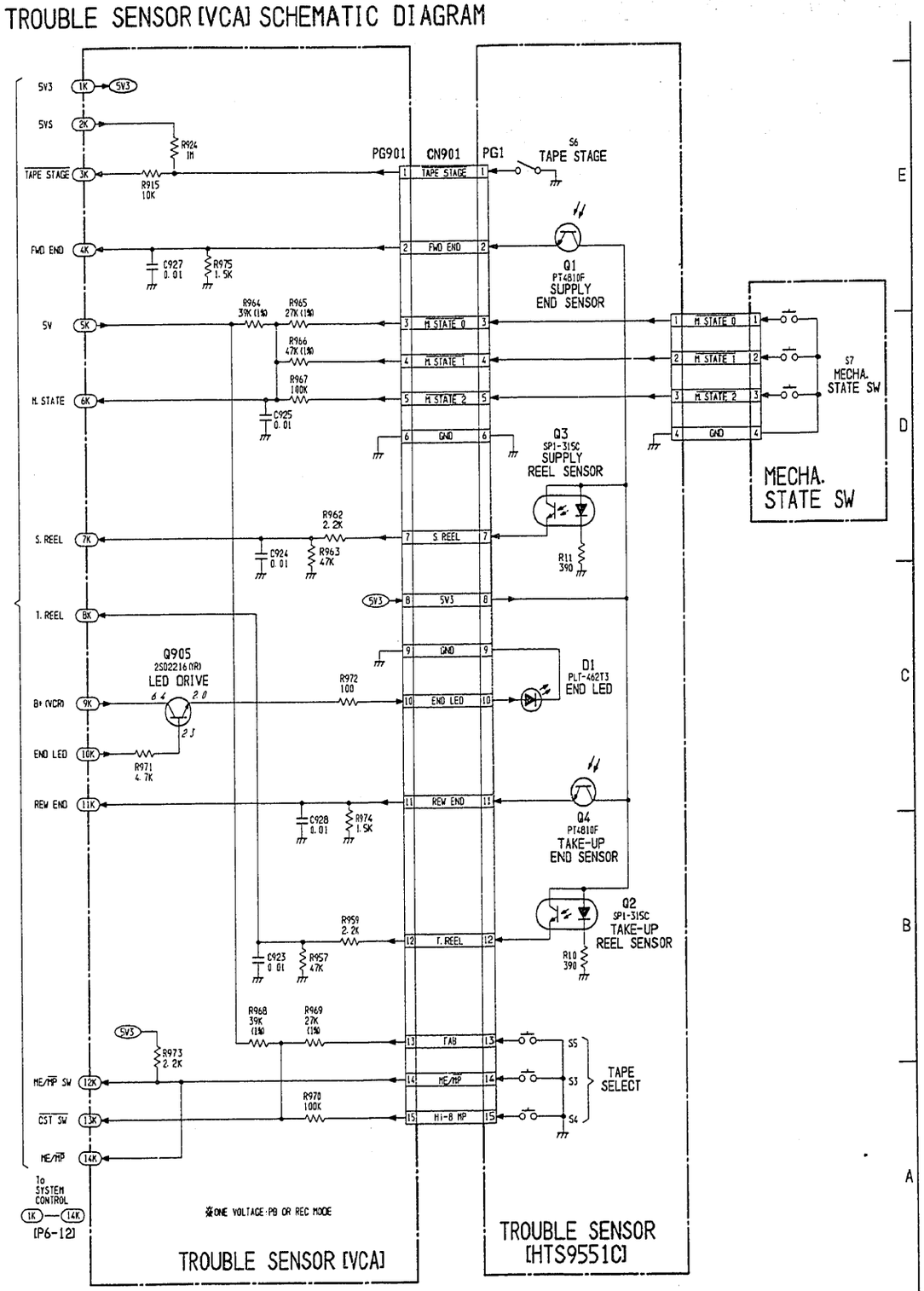
6-A IC901-70 5.0Vp-p
1V/200 μ sec. cm
REC/PLAY



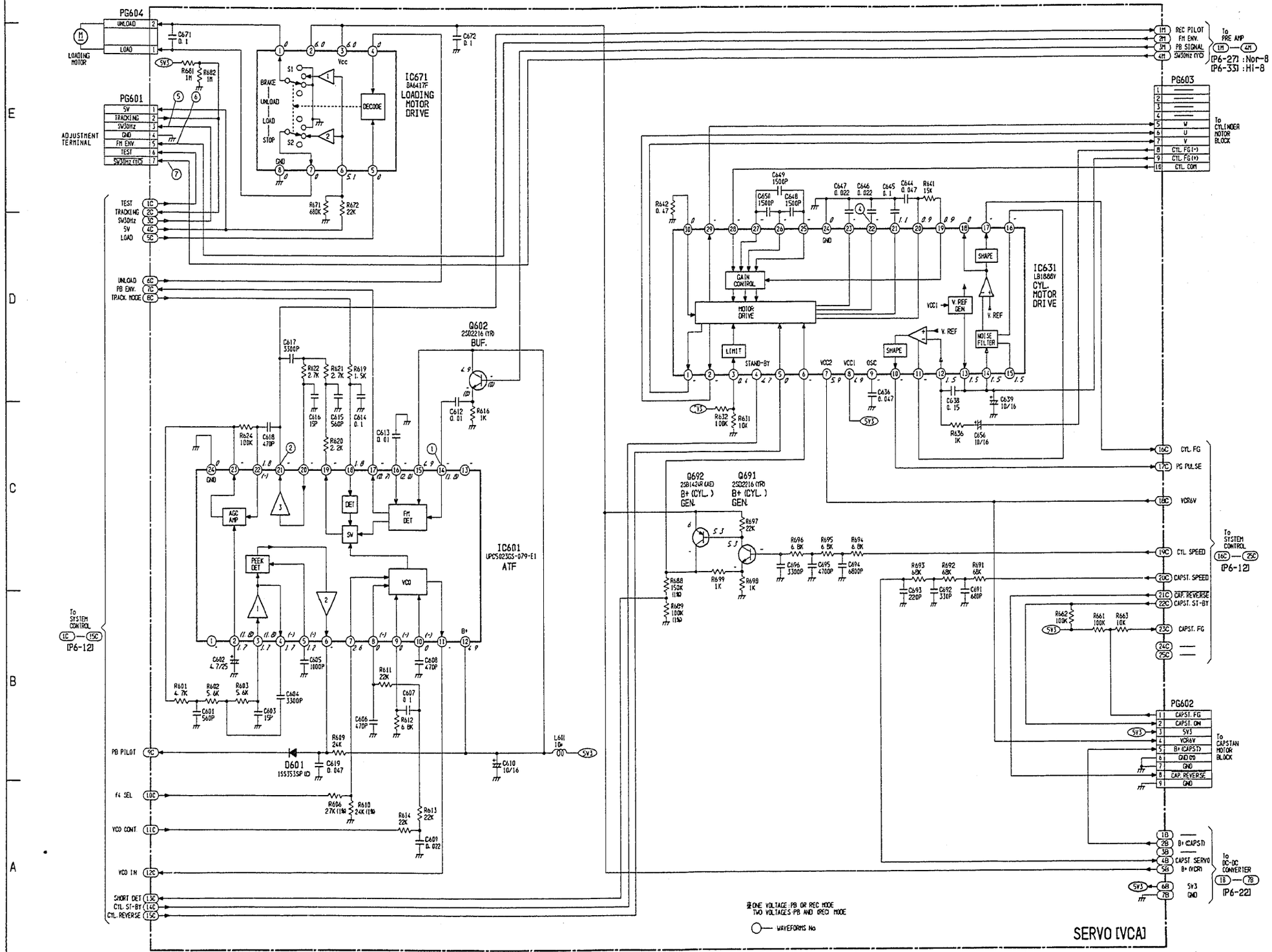
7-A IC901-87 5.3Vp-p
1V/20.0 μ sec. cm
REC/PLAY



TROUBLE SENSOR [VCA] SCHEMATIC DIAGRAM

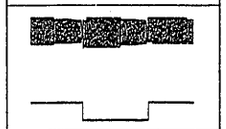


SERVO [VCA] SCHEMATIC DIAGRAM



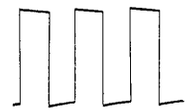
SERVO SECTION WAVEFORMS

1-B IC601-14 250mVp-p
0.2V/5.0msec. cm
PLAY

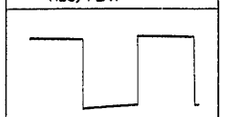


2-A IC601-21 880mVp-p
200mV/20.0 μ sec. cm
REC

4-A IC631-22 5.2Vp-p
1V/1.0msec. cm
REC/PLAY

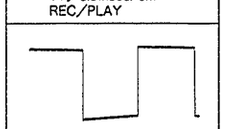


5-A PG601-3 5.3Vp-p
1V/5.0msec. cm
REC/PLAY

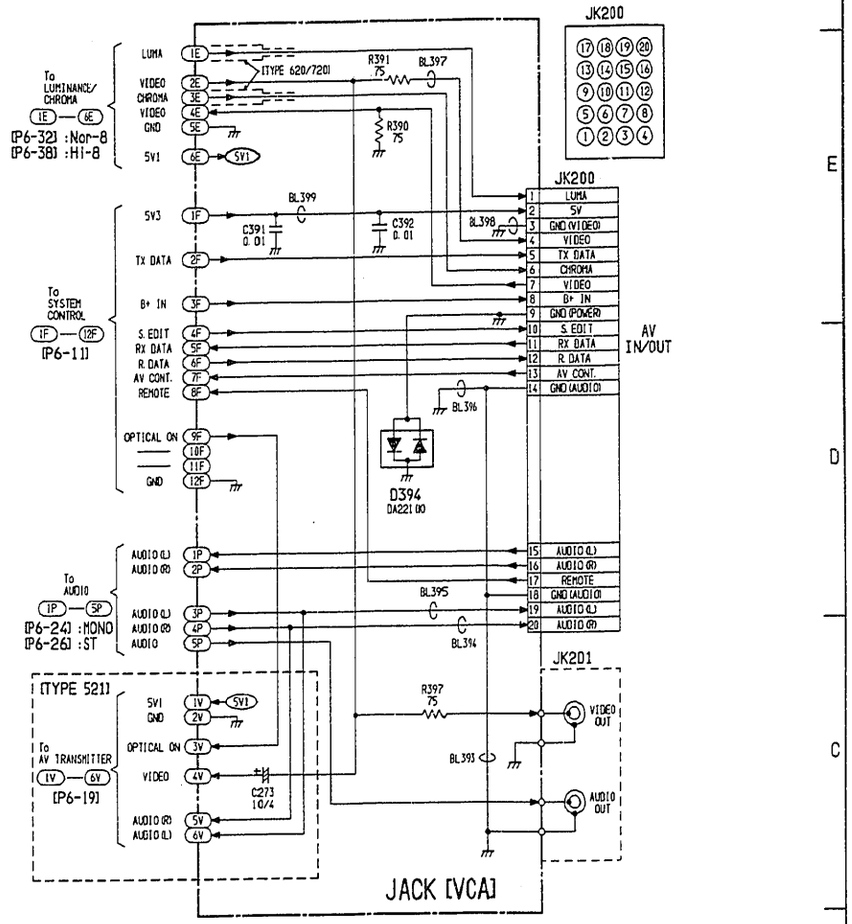


6-B PG601-5 250mVp-p
0.2V/5.0msec. cm
PLAY

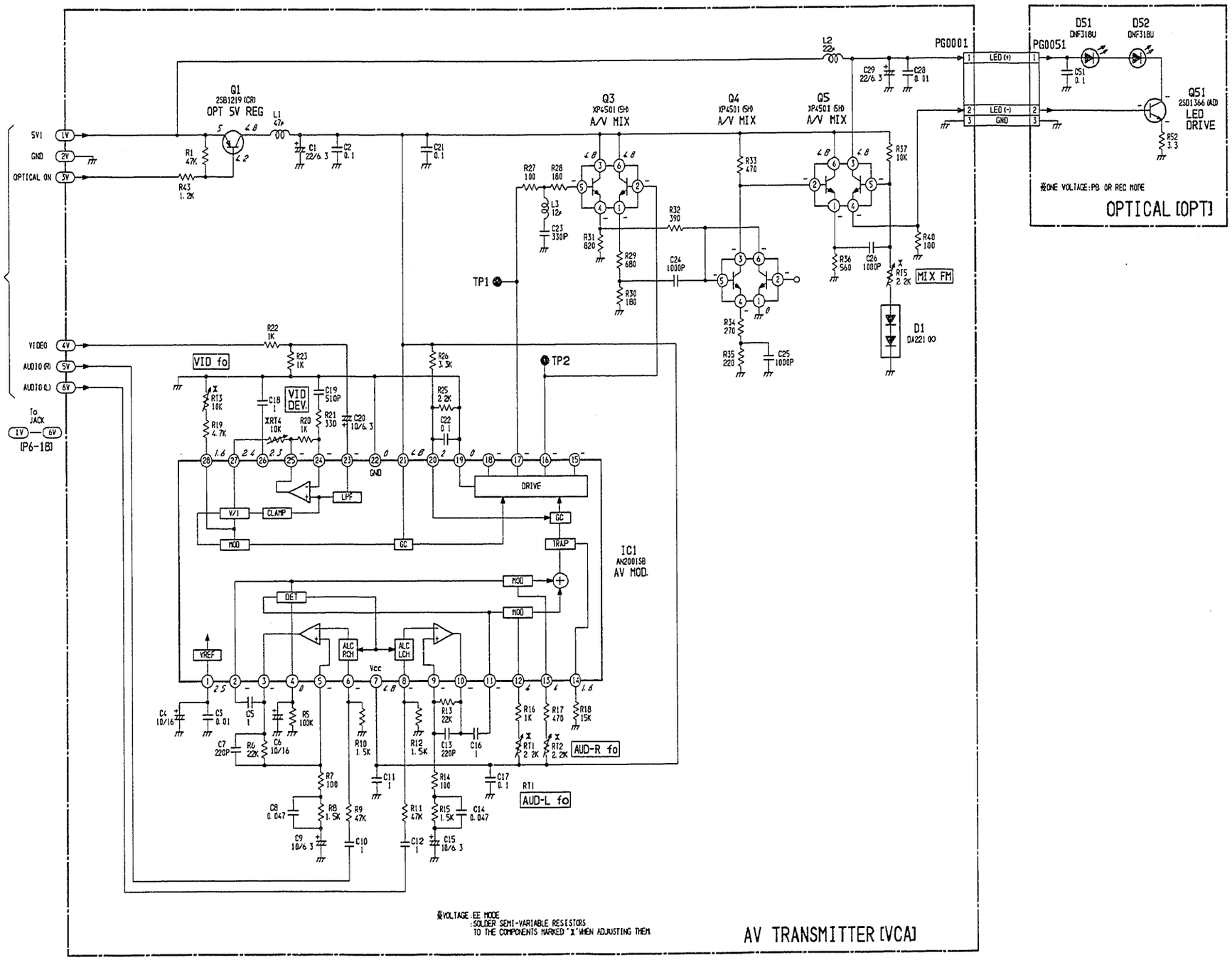
7-A PG601-7 3.8Vp-p
1V/5.0msec. cm
REC/PLAY



JACK [VCA] SCHEMATIC DIAGRAM

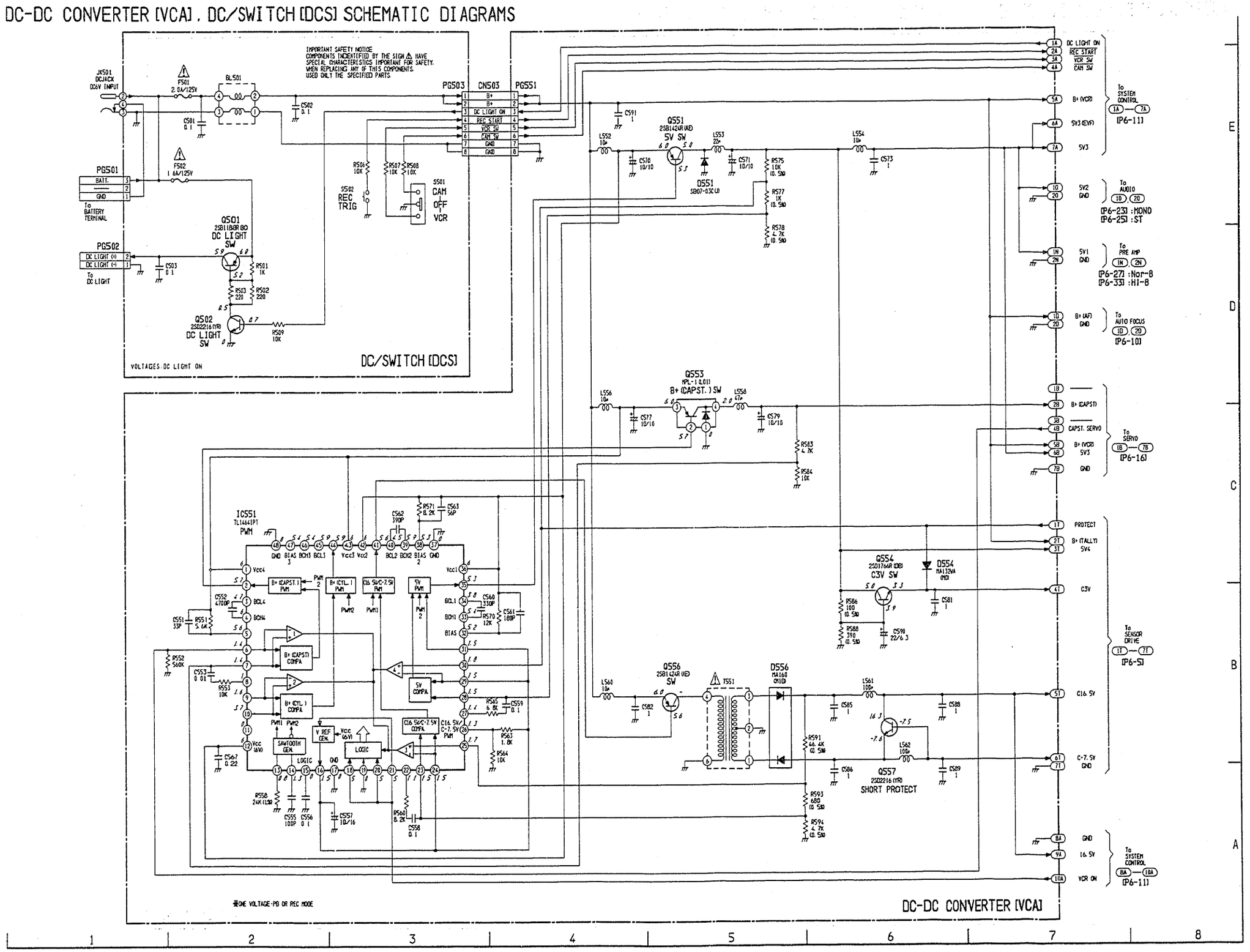


AV TRANSMITTER [VCA], OPTICAL [OPT] SCHEMATIC DIAGRAMS -TYPE 521-

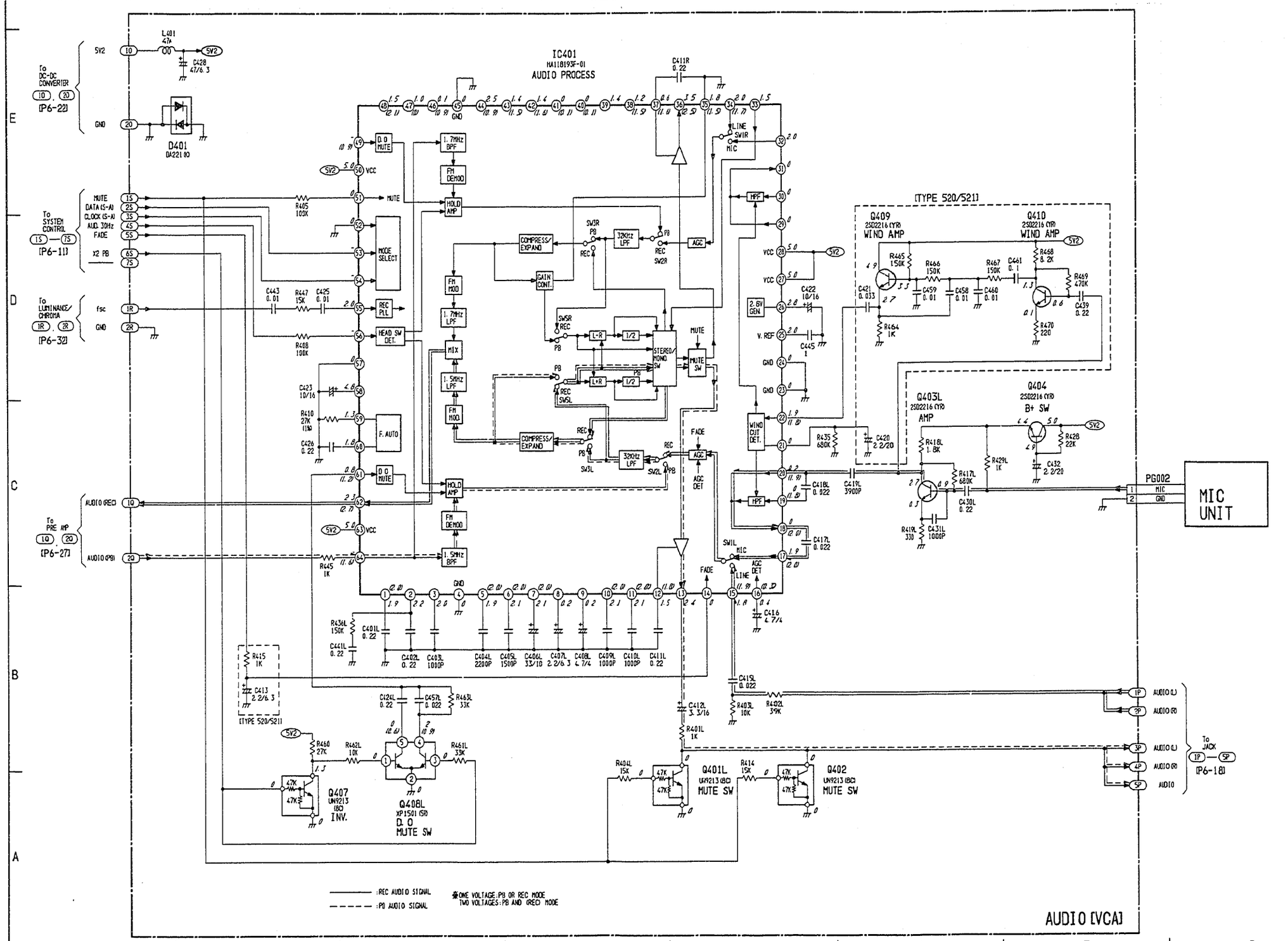


AV TRANSMITTER 6-19 6-20 AV TRANSMITTER. OPTICAL

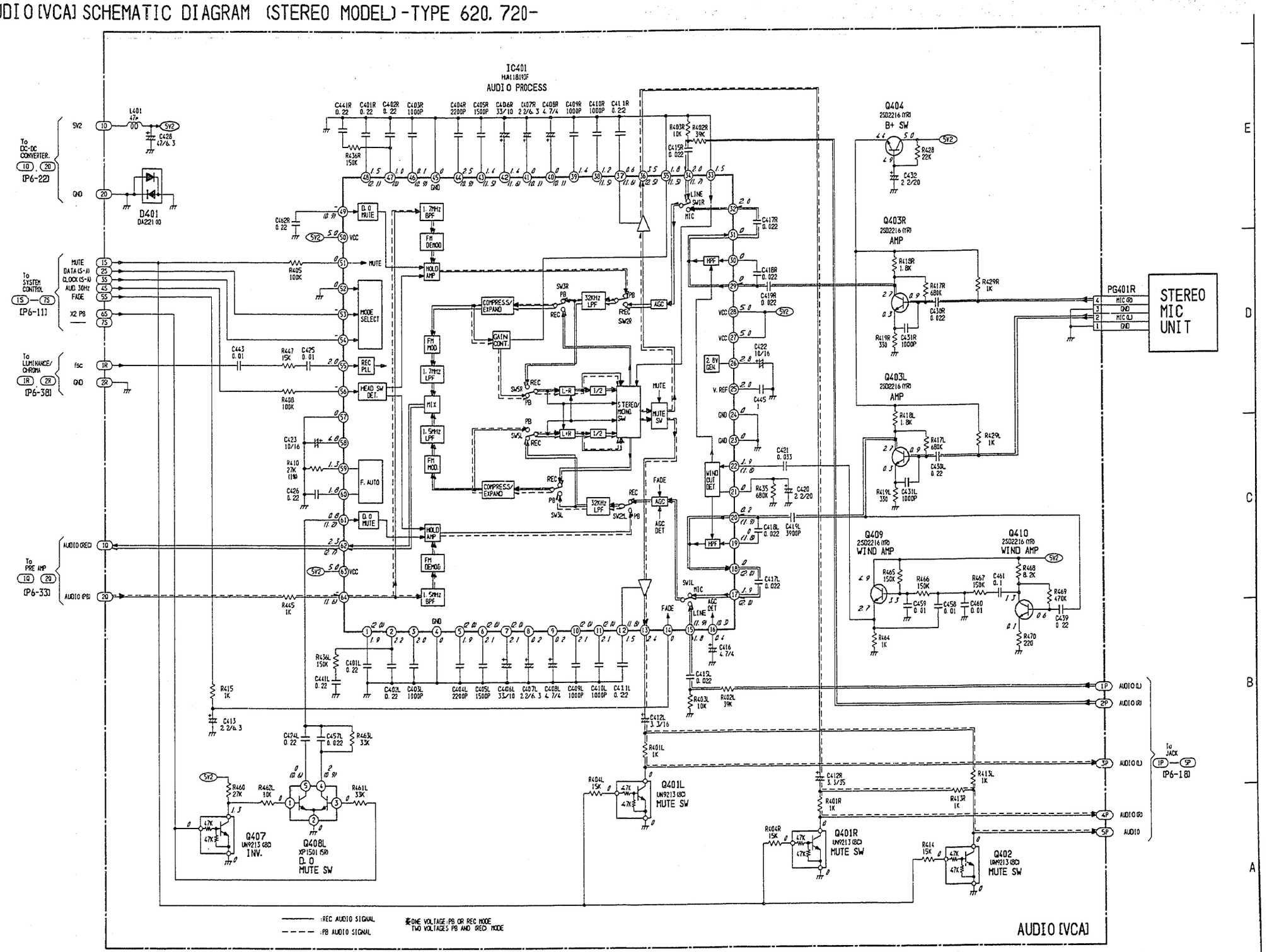
DC-DC CONVERTER [VCA], DC/SWITCH [DCS] SCHEMATIC DIAGRAMS



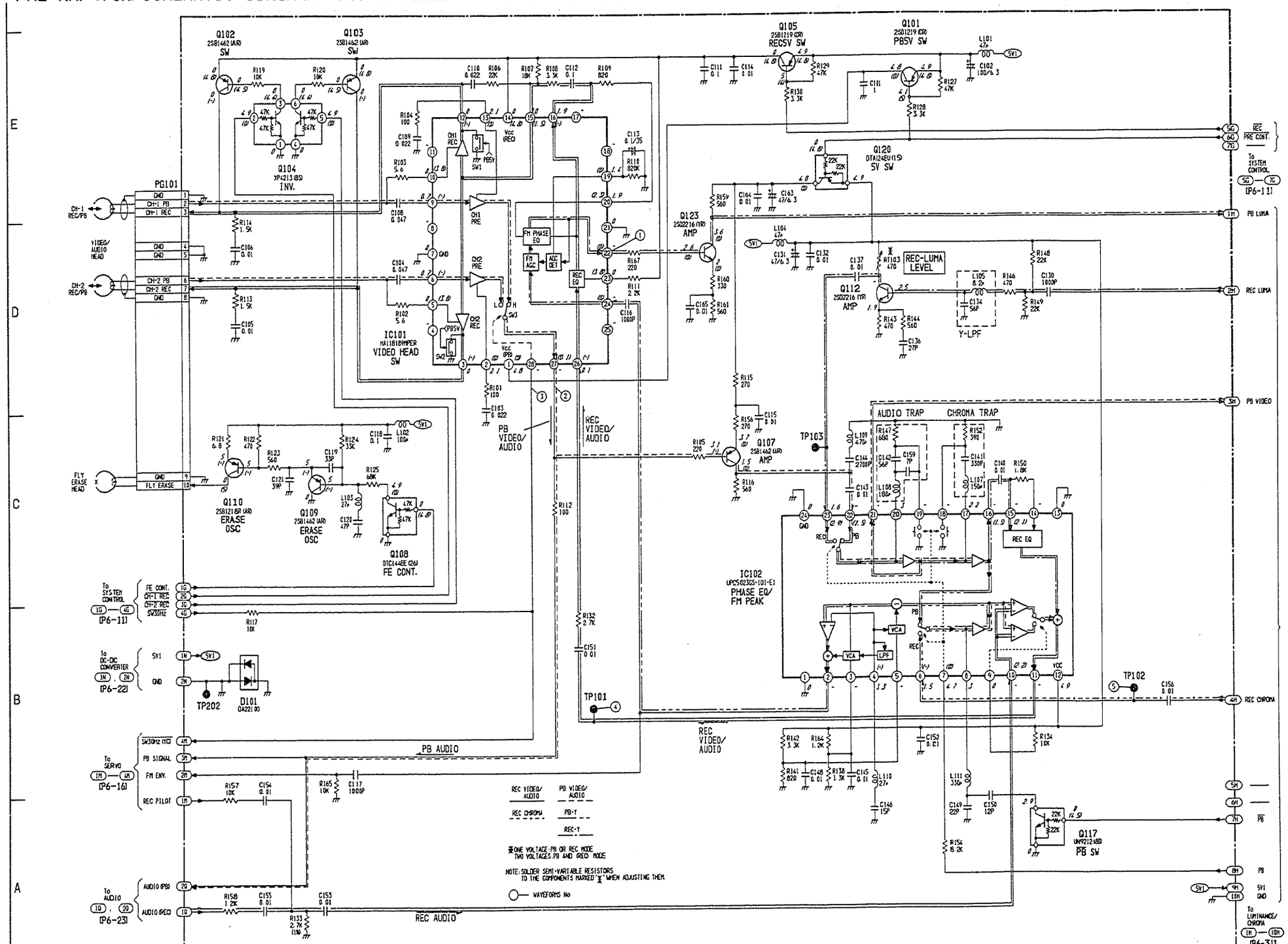
AUDIO [VCA] SCHEMATIC DIAGRAM (MONAURAL MODEL) -TYPE 220. 520. 521-



AUDIO [VCA] SCHEMATIC DIAGRAM (STEREO MODEL) -TYPE 620, 720-

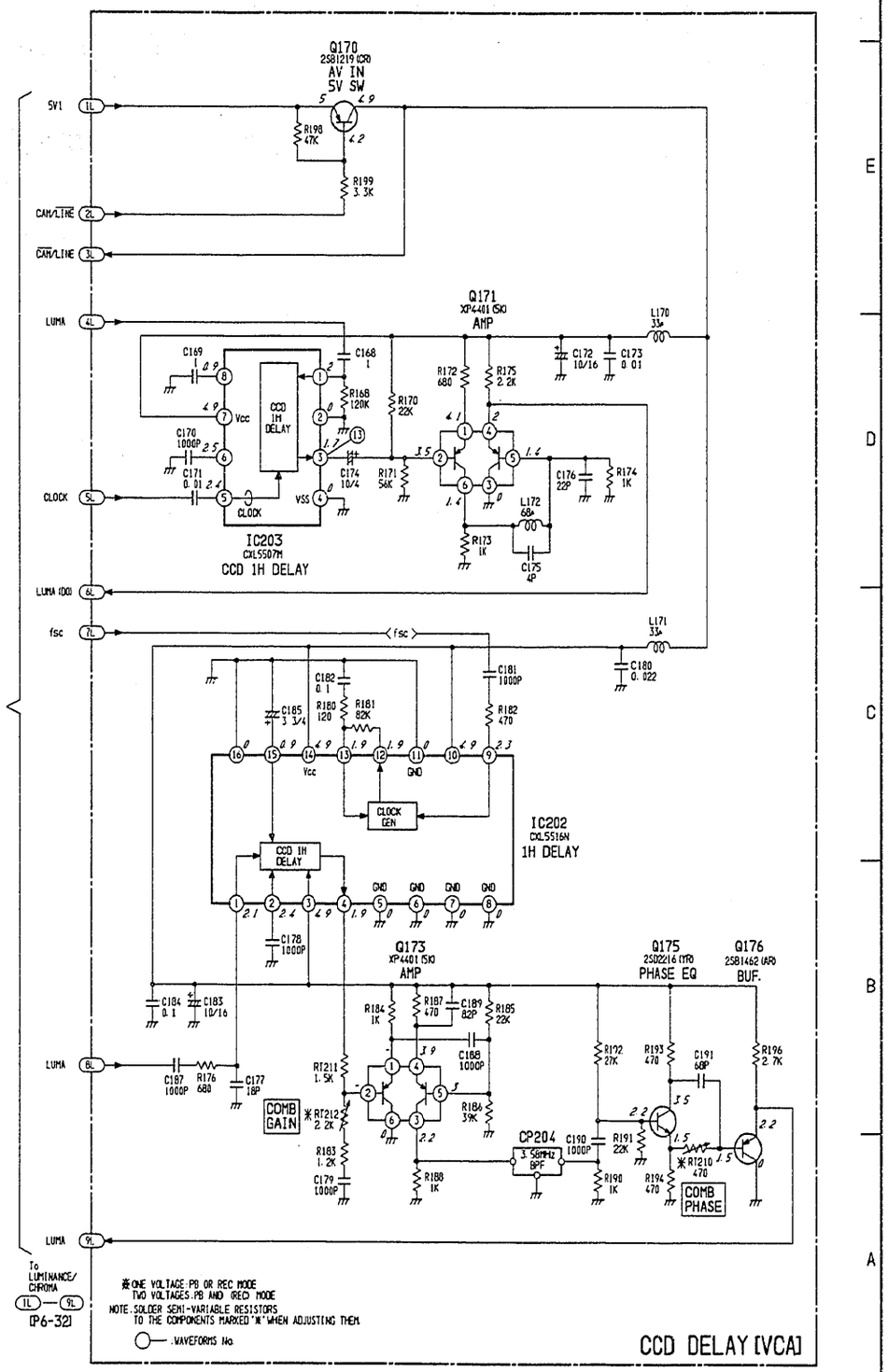


PRE AMP [VCA] SCHEMATIC DIAGRAM (Nor. 8 MODEL) -TYPE 220, 520, 521-



PRE AMP (Nor. 8 MODEL) 6-27 6-28 PRE AMP (Nor. 8 MODEL)

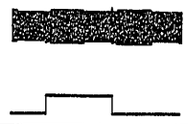
CCD DELAY [VCA] SCHEMATIC DIAGRAM (Nor. 8 MODEL) -TYPE 220, 520, 521-



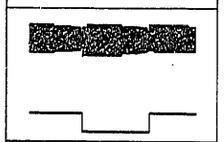
VIDEO SECTION WAVEFORMS

PRE AMP WAVEFORMS

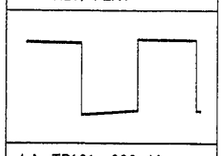
1-B IC101-22 340mVp-p
0.2V/5.0msec. cm
PLAY



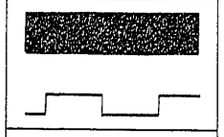
2-B IC101-27 230mVp-p
0.1V/5.0msec. cm
PLAY



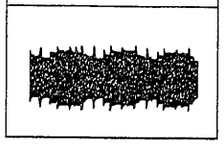
3-A IC101-28 3.8Vp-p
1V/5.0msec. cm
REC/PLAY



4-A TP101 220mVp-p
0.1V/5.0msec. cm
REC

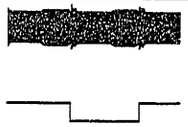


5-A TP102 160mVp-p
50mV/20.0 μ sec. cm
REC

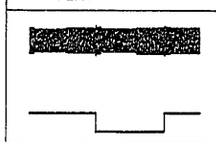


LUMINANCE/CHROMA WAVEFORMS

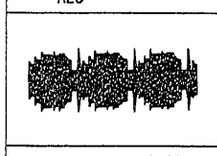
1-B IC201-8 550mVp-p
0.2V/5.0msec. cm
PLAY



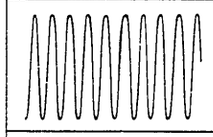
2-B IC201-10 190mVp-p
0.1V/5.0msec. cm
PLAY



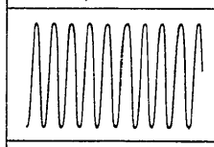
3-A IC201-13 360mVp-p
0.1V/20.0 μ sec. cm
REC



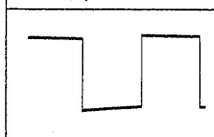
4-A IC201-19 410mVp-p
0.1V/100nsec. cm
REC/PLAY



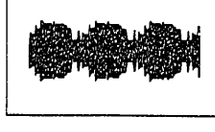
5-A IC201-22 380mVp-p
0.1V/200nsec. cm
REC/PLAY



6-A IC201-27 2.6Vp-p
0.5V/5.0msec. cm
REC/PLAY

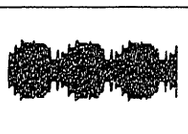


7-A IC201-36 78mVp-p
20mV/20.0 μ sec. cm
REC

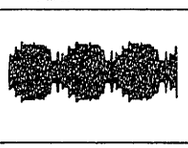


7-B IC201-36 96mVp-p
20mV/20.0 μ sec. cm
PLAY

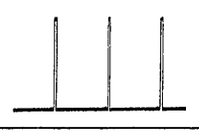
8-A IC201-38 200mVp-p
50mV/20.0 μ sec. cm
REC



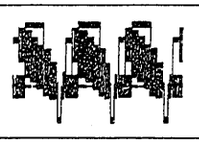
8-B IC201-38 240mVp-p
50mV/20.0 μ sec. cm
PLAY



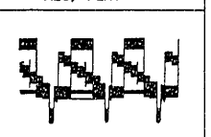
9-A IC201-47 5.0Vp-p
1V/20.0 μ sec. cm
REC/PLAY



10-A IC201-49 1Vp-p
0.2V/20.0 μ sec. cm
REC

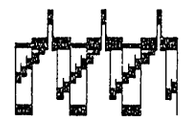


11-A IC201-53 350mVp-p
0.1V/20.0 μ sec. cm
REC/PLAY

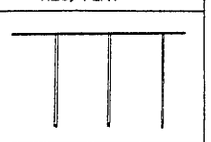


12-A IC201-54 500mVp-p
0.1V/20.0 μ sec. cm
REC/PLAY

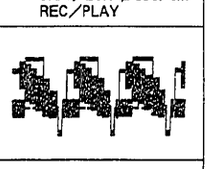
13-A IC203-3 520mVp-p
0.1V/20.0 μ sec. cm
REC/PLAY



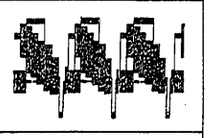
14-A IC204-4 5.0Vp-p
1V/5.0msec. cm
REC/PLAY



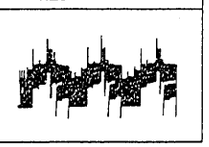
15-A IC204-10 2.1Vp-p
0.5V/20.0 μ sec. cm
REC/PLAY



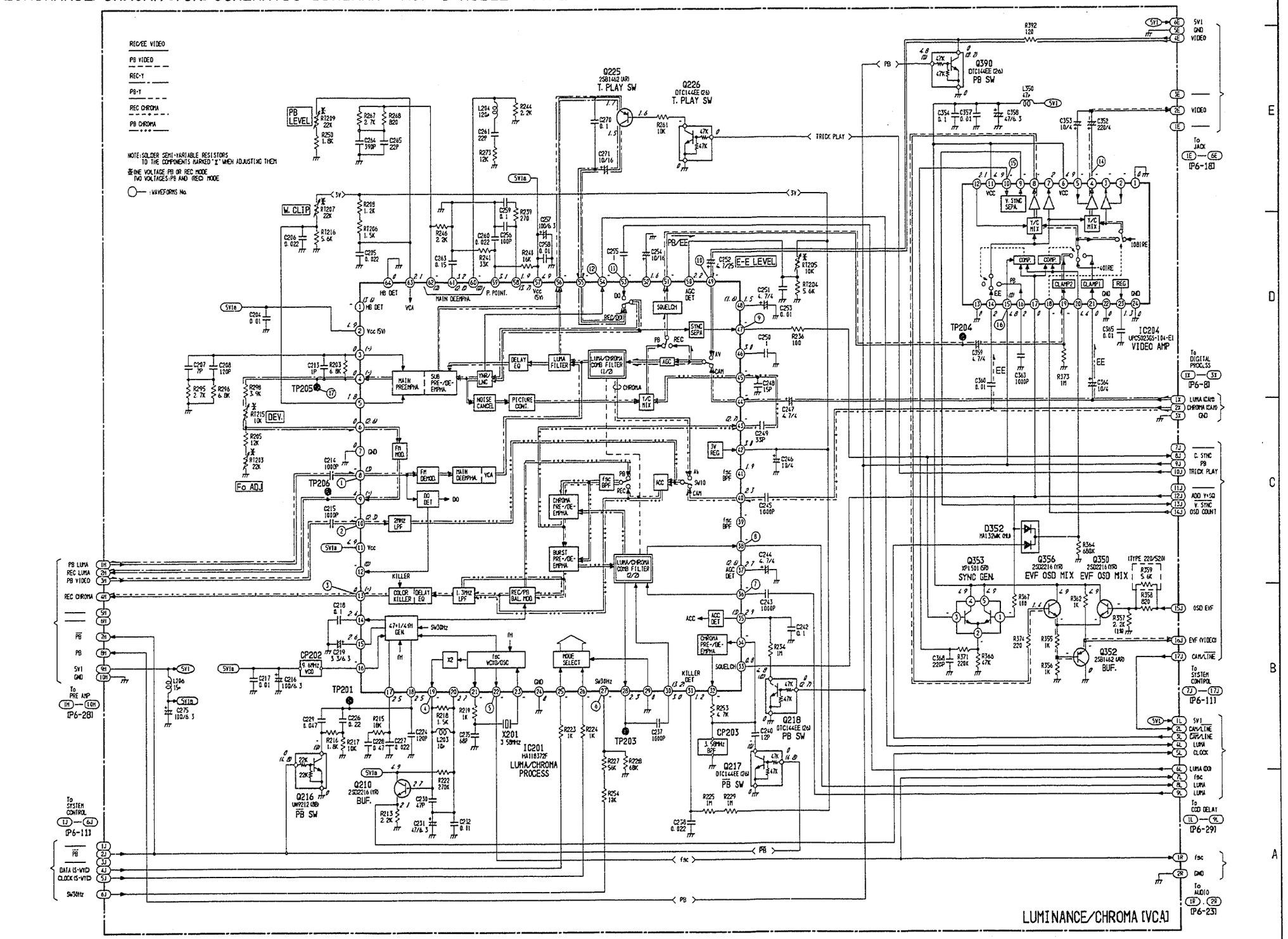
16-A IC204-15 1.1Vp-p
0.2V/20.0 μ sec. cm
REC/PLAY



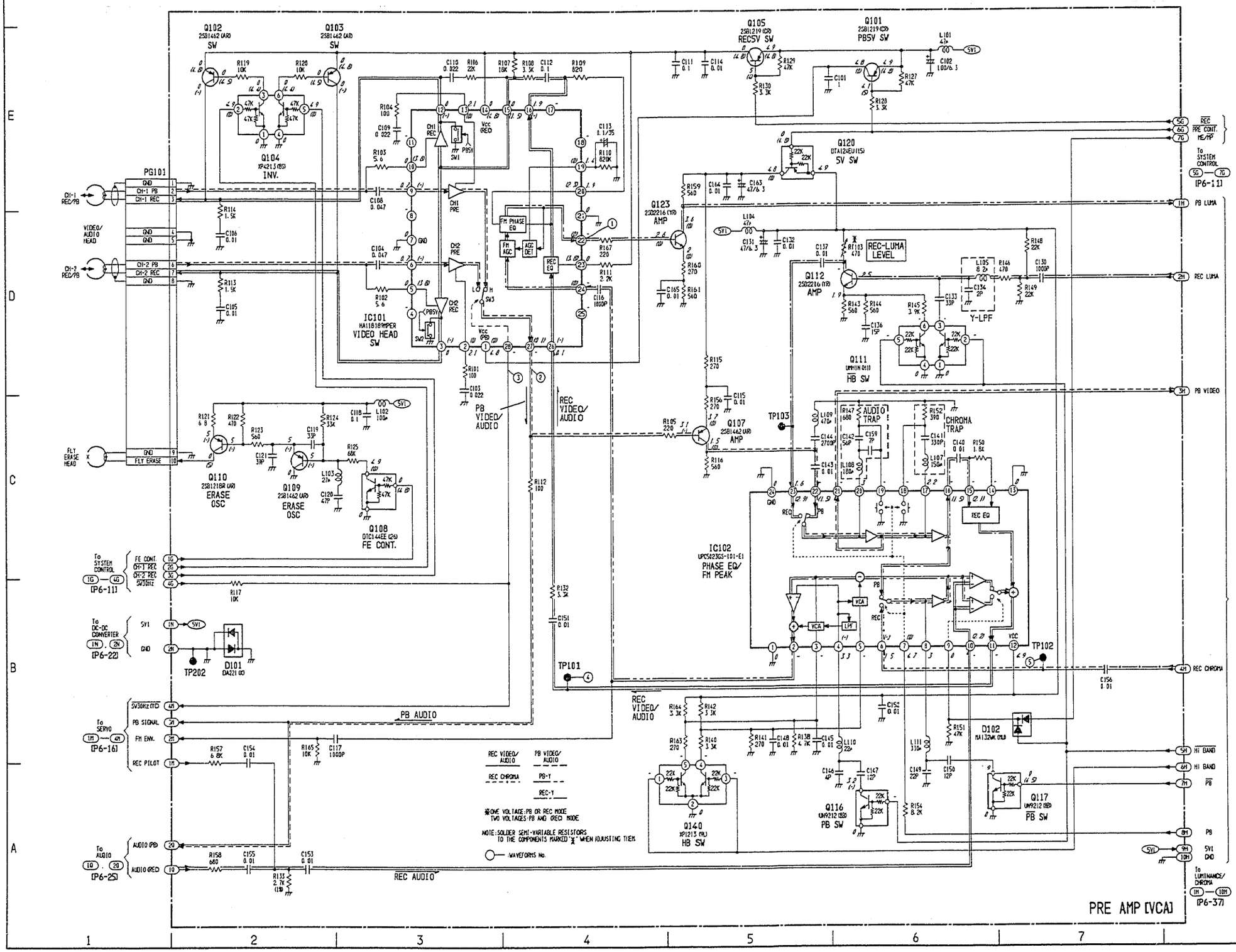
17-A TP205 1Vp-p
0.2V/20.0 μ sec. cm
REC



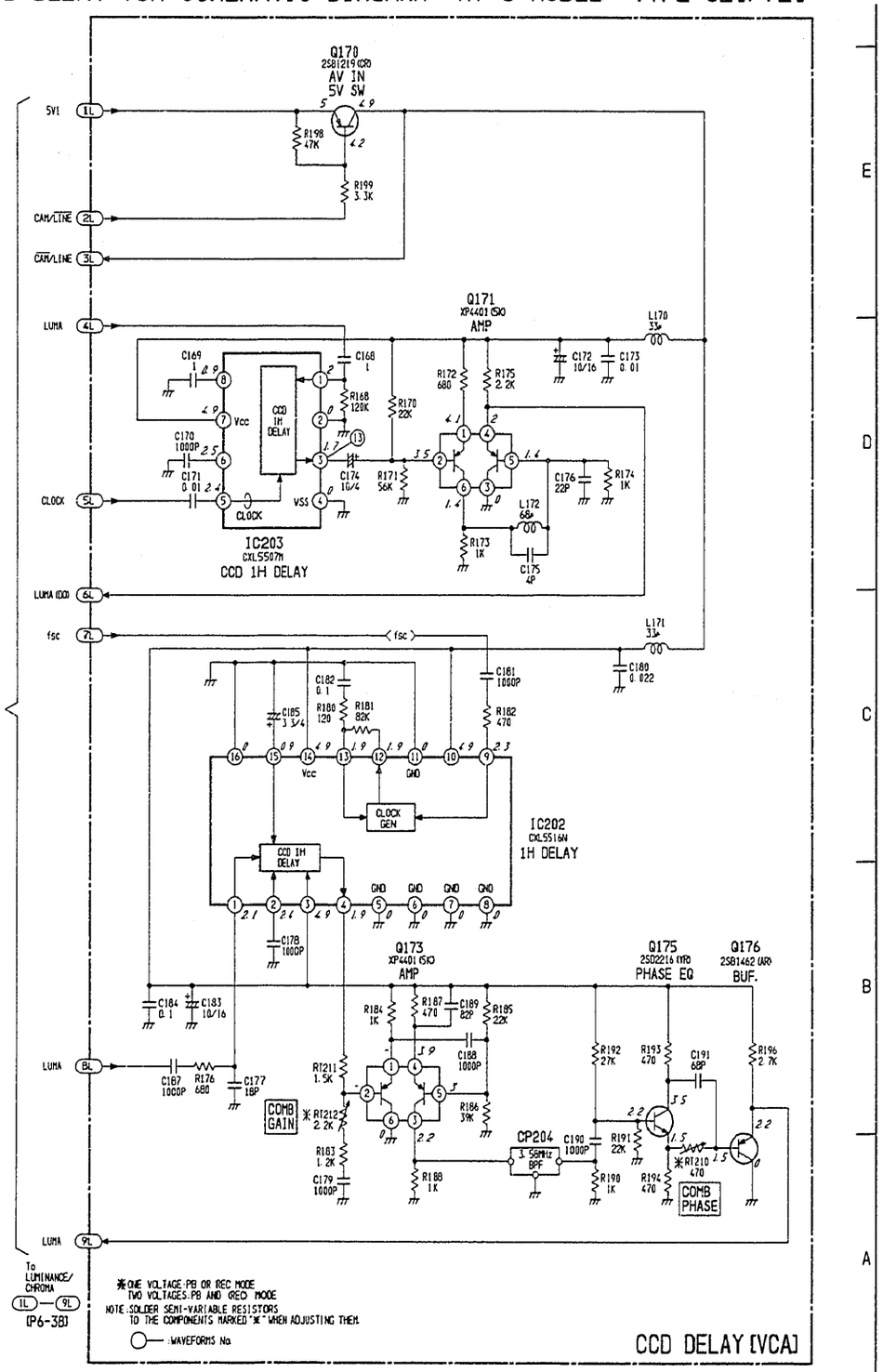
LUMINANCE/CHROMA [VCA] SCHEMATIC DIAGRAM (Nor. 8 MODEL) -TYPE 220. 520. 521-



PRE AMP [VCA] SCHEMATIC DIAGRAM (Hi-8 MODEL) -TYPE 620, 720-



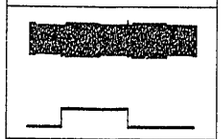
CCD DELAY [VCA] SCHEMATIC DIAGRAM (Hi-8 MODEL) -TYPE 620, 720-



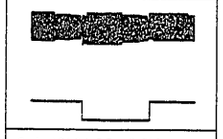
VIDEO SECTION WAVEFORMS

PRE AMP WAVEFORMS

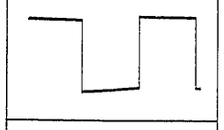
1-B IC101-22 340mVp-p
0.2V/5.0msec. cm
PLAY



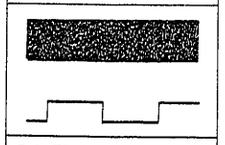
2-B IC101-27 230mVp-p
0.1V/5.0msec. cm
PLAY



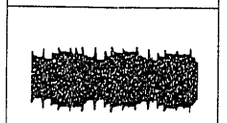
3-A IC101-28 3.8Vp-p
1V/5.0msec. cm
REC/PLAY



4-A TP101 220mVp-p
0.1V/5.0msec. cm
REC

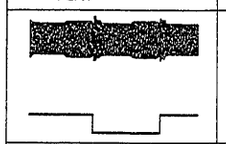


5-A TP102 160mVp-p
50mV/20.0 μ sec. cm
REC

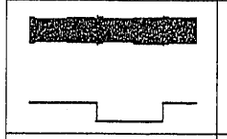


LUMINANCE/CHROMA WAVEFORMS

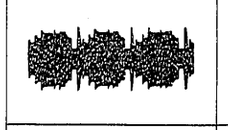
1-B IC201-8 550mVp-p
0.2V/5.0msec. cm
PLAY



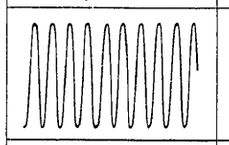
2-B IC201-10 190mVp-p
0.1V/5.0msec. cm
PLAY



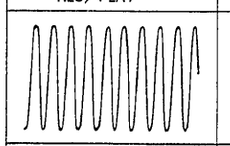
3-A IC201-13 360mVp-p
0.1V/20.0 μ sec. cm
REC



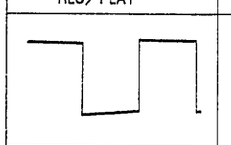
4-A IC201-19 410mVp-p
0.1V/100nsec. cm
REC/PLAY



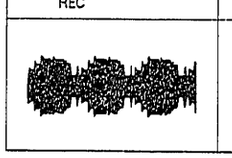
5-A IC201-22 380mVp-p
0.1V/200nsec. cm
REC/PLAY



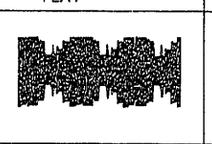
6-A IC201-27 2.6Vp-p
0.5V/5.0msec. cm
REC/PLAY



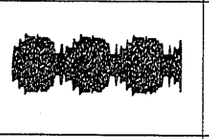
7-A IC201-36 78mVp-p
20mV/20.0 μ sec. cm
REC



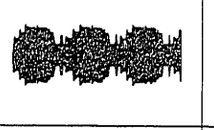
7-B IC201-36 96mVp-p
20mV/20.0 μ sec. cm
PLAY



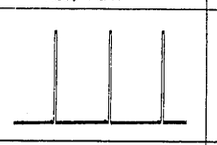
8-A IC201-38 200mVp-p
50mV/20.0 μ sec. cm
REC



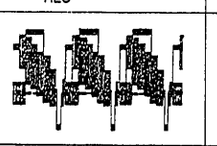
8-B IC201-38 240mVp-p
50mV/20.0 μ sec. cm
PLAY



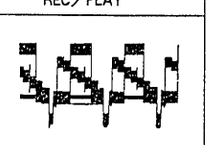
9-A IC201-47 5.0Vp-p
1V/20.0 μ sec. cm
REC/PLAY



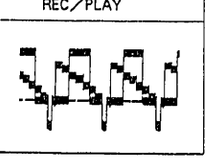
10-A IC201-49 1Vp-p
0.2V/20.0 μ sec. cm
REC



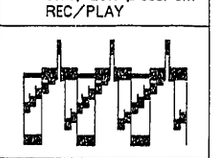
11-A IC201-53 350mVp-p
0.1V/20.0 μ sec. cm
REC/PLAY



12-A IC201-54 500mVp-p
0.1V/20.0 μ sec. cm
REC/PLAY

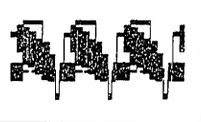


13-A IC203-3 520mVp-p
0.1V/20.0 μ sec. cm
REC/PLAY

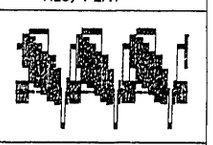


14-A IC204-4 5.0Vp-p
1V/5.0msec. cm
REC/PLAY

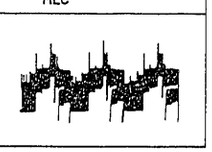
15-A IC204-10 2.1Vp-p
0.5V/20.0 μ sec. cm
REC/PLAY



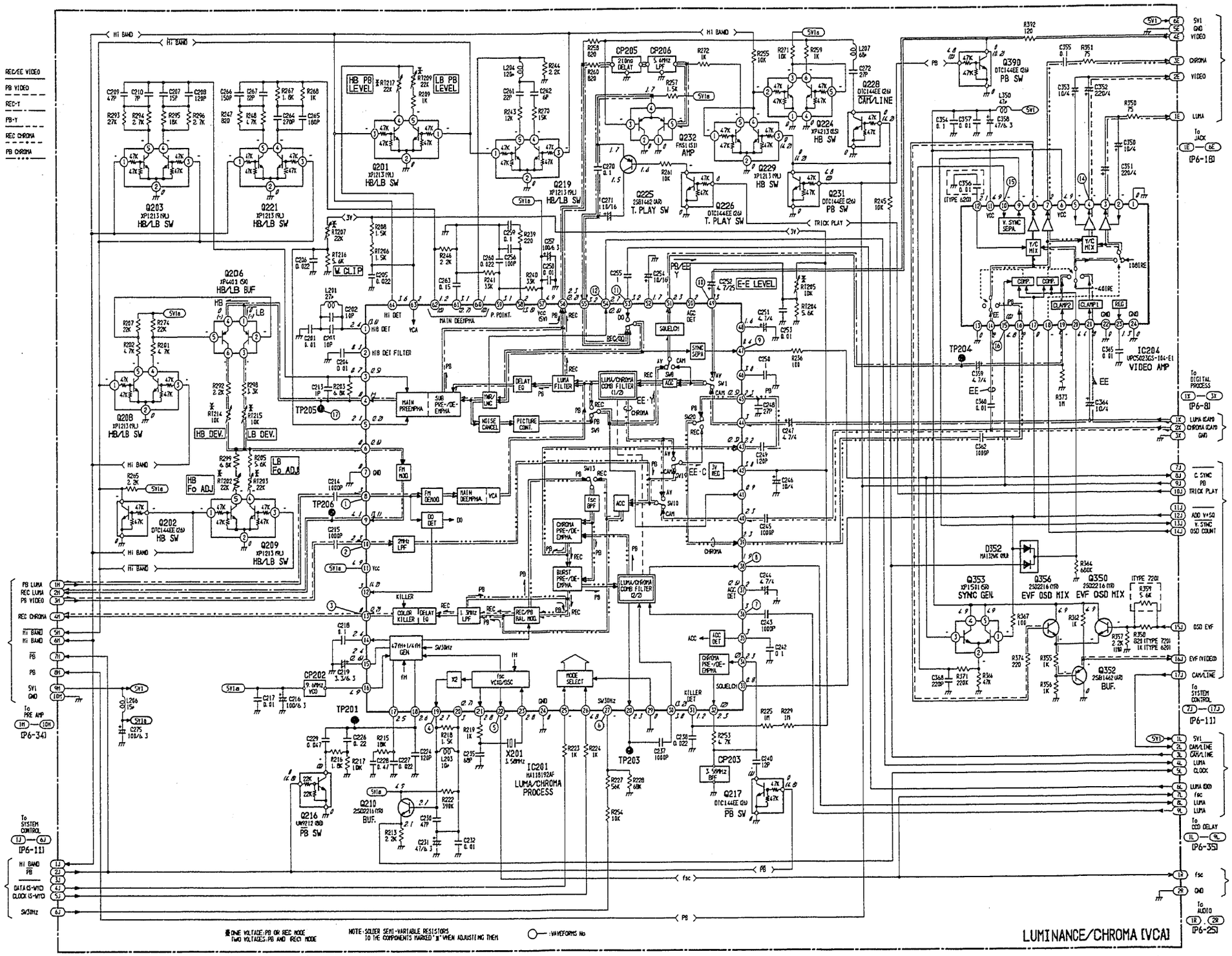
16-A IC204-15 1.1Vp-p
0.2V/20.0 μ sec. cm
REC/PLAY



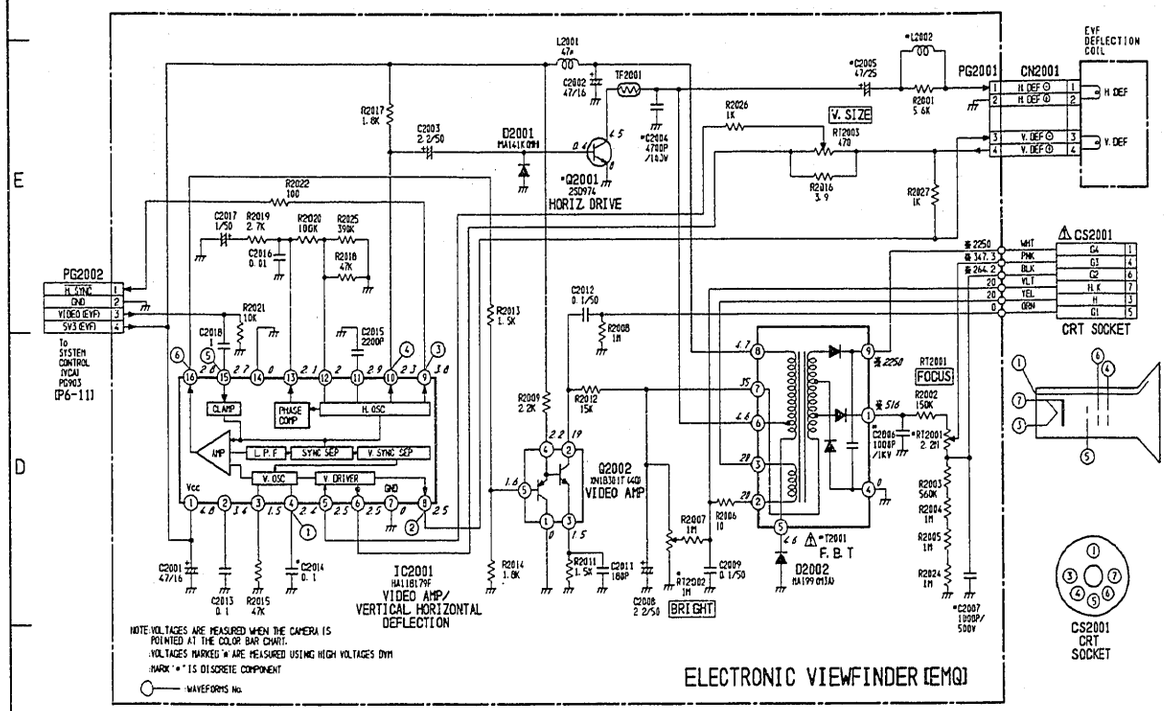
17-A TP205 1Vp-p
0.2V/20.0 μ sec. cm
REC



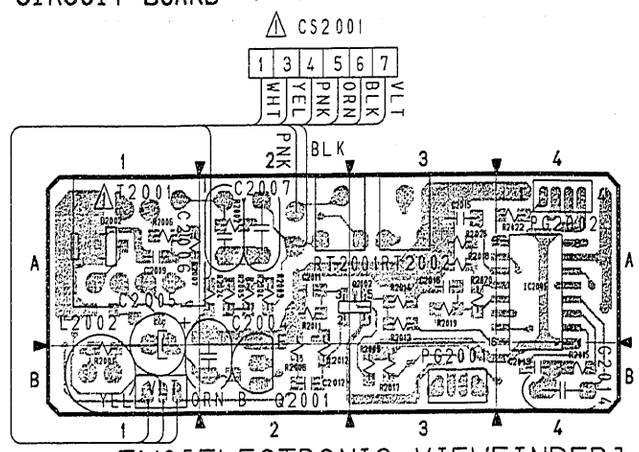
LUMINANCE/CHROMA [VCA] SCHEMATIC DIAGRAM (Hi-8 MODEL) -TYPE 620, 720-

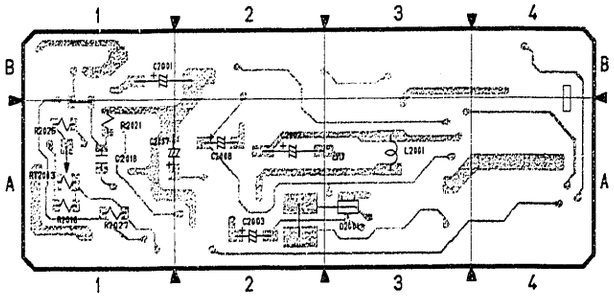


ELECTRONIC VIEWFINDER [EMQ] SCHEMATIC DIAGRAM -TYPE 620-



EMQ CIRCUIT BOARD





ELECTRONIC VIEWFINDER WAVEFORMS

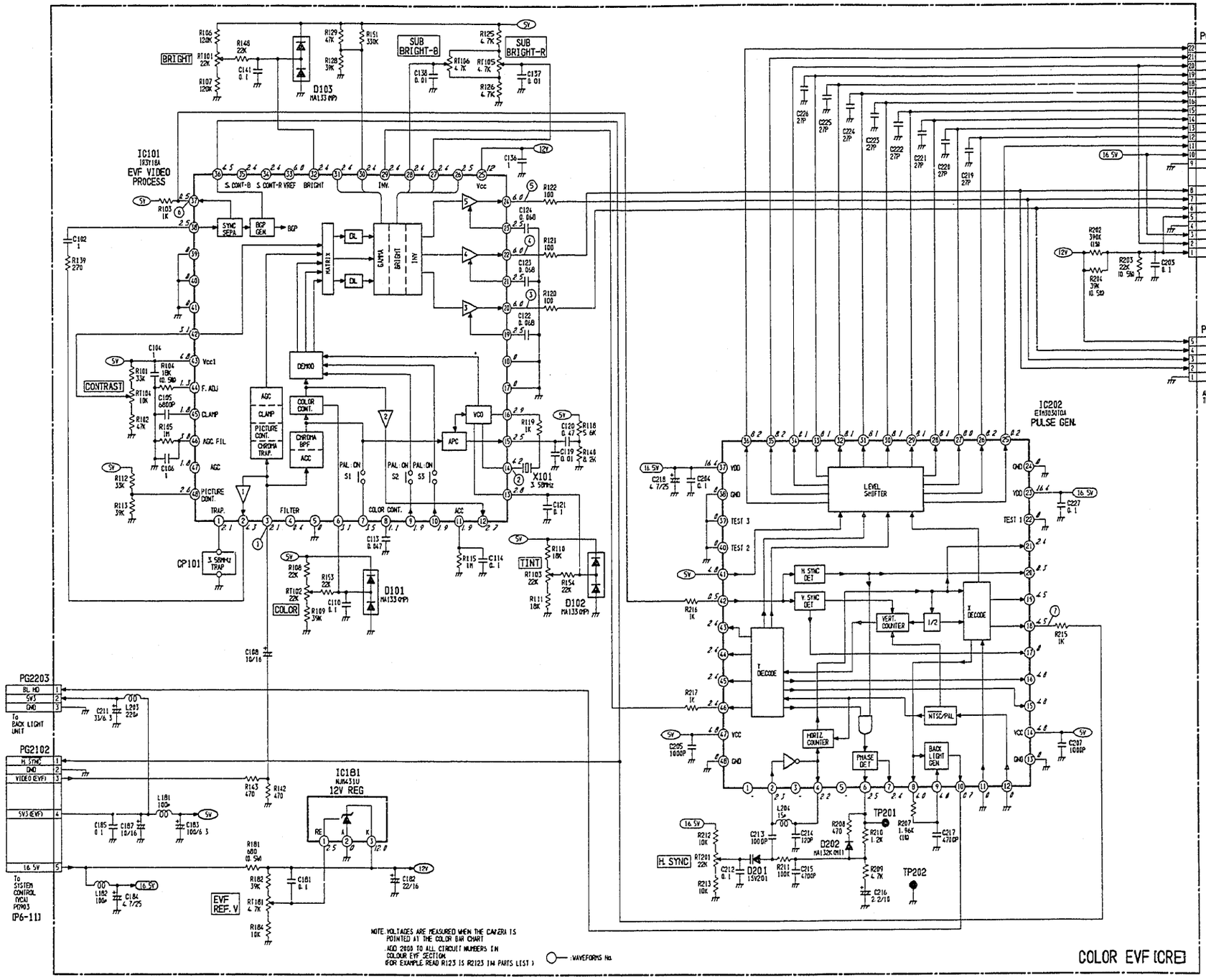
1-A IC2001-4 950mVp-p 0.2V/5.0msec.cm COLOR CHART	2-A IC2001-8 2.3Vp-p 0.5V/5.0msec.cm COLOR CHART	3-A IC2001-9 5.0Vp-p 1V/20.0 μ sec.cm COLOR CHART
4-A IC2001-10 1.7Vp-p 0.5V/20.0 μ sec.cm COLOR CHART	5-A IC2001-15 900mVp-p 0.2V/20.0 μ sec.cm COLOR CHART	6-A IC2001-16 2.8Vp-p 1V/20.0 μ sec.cm COLOR CHART

IDENTIFICATION OF PARTS LOCATION

EVF
[ELECTRONIC VIEWFINDER]

Symbol No.	Parts Location
C	
C2001	B-1B
C2002	B-2A
C2003	B-2A
C2004	A-2B
C2005	A-1A
C2006	A-2A
C2007	A-2A
C2008	B-2A
C2009	A-1A
C2011	A-2A
C2012	A-2B
C2013	A-4B
C2014	A-4B
C2015	A-3A
C2016	A-3A
C2017	B-2A
C2018	B-1A
D	
D2001	B-3A
D2002	A-1A
IC	
IC2001	A-4A
L	
L2001	B-3A
L2002	A-1B
PG	
PG2001	A-3B
PG2002	A-4A
Q	
Q2001	A-2B
Q2002	A-3A
R	
R2001	A-1B
R2002	A-2A
R2003	A-2A
R2004	A-2A
R2005	A-2A
R2006	A-1A
R2007	A-1A
R2008	A-2B
R2009	A-3B
R2011	A-2A
R2012	A-2B
R2013	A-3A
R2014	A-3A
R2015	A-4B
R2016	B-1A
R2017	A-3B
R2018	A-3A
R2019	A-3A
R2020	A-3A
R2021	B-1A
R2022	A-4A
R2024	A-2A
R2025	A-3A
R2026	B-1A
R2027	B-1A
RT	
RT2001	A-2A
RT2002	A-3A
RT2003	B-1A
T	
T2001	A-1A

COLOR EVF [CRE] SCHEMATIC DIAGRAM -TYPE 220. 520. 521. 720-

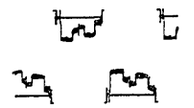


WAVEFORMS

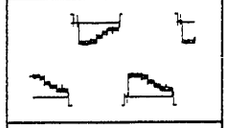
1-A IC2101-3 0.47Vp-p
0.1V/20.0 μ sec. cm
COLOR CHART

2-A IC2101-14 0.5Vp-p
0.2V/20.0 μ sec. cm
COLOR CHART

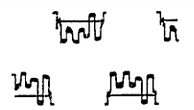
3-A IC2101-20 10Vp-p
2V/20.0 μ sec. cm
COLOR CHART



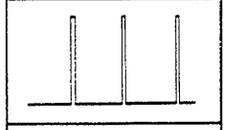
4-A IC2101-22 10Vp-p
2V/20.0 μ sec. cm
COLOR CHART



5-A IC2101-24 10Vp-p
2V/20.0 μ sec. cm
COLOR CHART



6-A IC2101-37 5.0Vp-p
1V/20.0 μ sec. cm
COLOR CHART

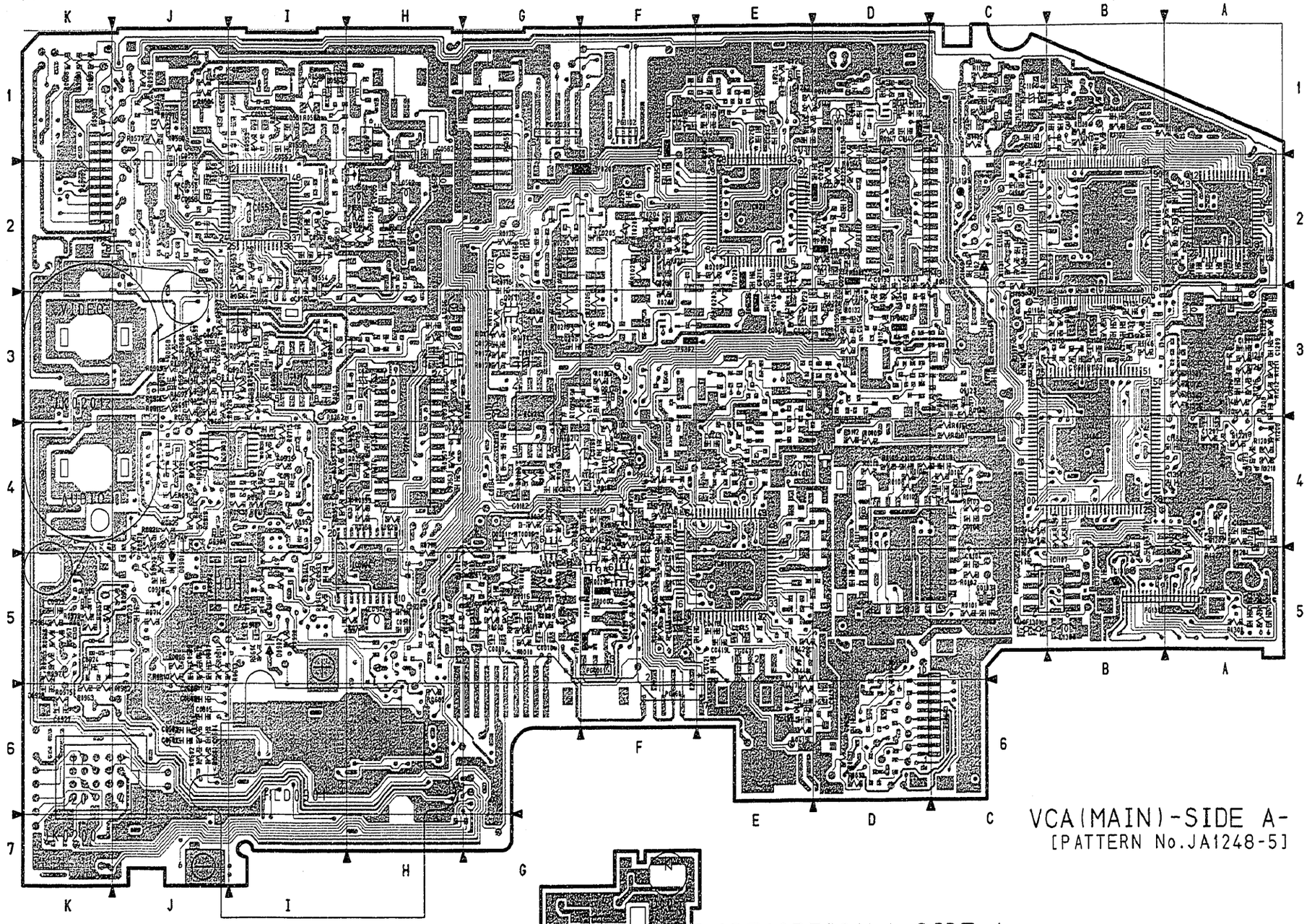


7-A IC2202-18 5.0Vp-p
1V/20.0 μ sec. cm
COLOR CHART

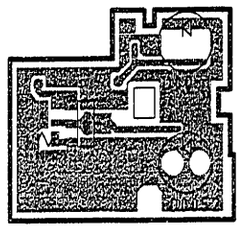
1 2 3 4 5 6 7 8

COLOR EVF 6-41 6-42 COLOR EVF

VCA. OPT CIRCUIT BOARDS -SIDE·A-
-TYPE 220. 520. 521. -



VCA(MAIN)-SIDE A-
[PATTERN No.JA1248-5]



OPT(OPTICAL)-SIDE A-
[PATTERN No.JA1248-5]
-TYPE 521 ONLY-

NOTE ; SOLDER SEMI-VARIABLE RESISTORS TO THE COMPONENTS MARKED "#" WHEN ADTUSTING THEM.

DIFFERENCE TABLE
VCA[MAIN] – SIDE A –

NOTE: This table listes the different components marked with asterisks(＊) in the circuit board diagrams.

SYMBOL No.	TYPE220	TYPE520	TYPE521
C0008	×	×	○
C0009	×	×	○
C0010	×	×	○
C0012	×	×	○
C0017	×	×	○
C0024	×	×	○
C0025	×	×	○
C0026	×	×	○
C0421	×	○	○
D0001	×	×	○
PG0001	×	×	○
Q0001	×	×	○
Q0003	×	×	○
Q0004	×	×	○
Q0005	×	×	○
R0001	×	×	○
R0007	×	×	○
R0008	×	×	○
R0009	×	×	○
R0010	×	×	○
R0011	×	×	○
R0012	×	×	○
R0016	×	×	○
R0017	×	×	○
R0029	×	×	○
R0030	×	×	○
R0031	×	×	○
R0032	×	×	○
R0033	×	×	○
R0034	×	×	○
R0035	×	×	○
R0036	×	×	○
R0037	×	×	○
R0038	×	×	JUMPER
R0039	×	×	JUMPER
R0040	×	×	○
R0043	×	×	○
R0359	○	○	×
R0415	×	○	○
R0714	×	×	○
RT0001	×	×	○
RT0002	×	×	○
RT0003	×	×	○
RT0004	×	×	○
RT0005	×	×	○

IDENTIFICATION OF PARTS LOCATION

MAIN [VCA] 1/2

Symbol No.	Parts Location
BL	
BL0393	B-4K
BL0394	B-7J
BL0395	B-7K
BL0396	B-7K
BL0397	B-6J
BL0398	B-6J
BL0399	B-6J
C	
C0101	B-4D
C0102	B-3D
C0103	A-5C
C0104	A-5C
C0105	B-4D
C0106	B-4C
C0108	A-4C
C0109	A-4C
C0110	A-4C
C0111	B-4D
C0112	A-4D
C0113	A-4D
C0114	B-4D
C0115	B-1C
C0116	A-5D
C0117	B-4E
C0118	B-5D
C0119	B-5D
C0120	B-5D
C0121	B-5D
C0130	A-1E
C0131	B-3C
C0132	A-3C
C0133	A-1D
C0134	A-1D
C0136	A-1D
C0137	A-1D
C0140	A-2D
C0141	B-2C
C0142	B-1C
C0143	A-1D
C0144	B-1D
C0145	A-1D
C0146	B-2D
C0147	B-2D
C0148	B-2D
C0149	B-2D
C0150	B-2D
C0151	A-3D
C0152	A-2D
C0153	A-2D
C0154	A-3D
C0155	A-3D
C0156	A-3D
C0159	B-1C
C0163	B-3C
C0164	B-3D
C0165	A-3C
C0168	A-2G
C0169	B-3G
C0170	B-4G
C0171	A-4G
C0172	B-3G
C0173	B-4G
C0174	A-3G
C0175	A-2G
C0176	A-3G
C0177	B-4F
C0178	B-4F
C0179	A-4G
C0180	B-4G
C0181	B-4G
C0182	A-4G
C0183	B-4G
C0184	A-4G
C0185	B-4G
C0187	B-4G
C0188	B-4F
C0189	B-4F
C0190	A-4F
C0191	A-3F
C0201	B-2E
C0202	B-2E
C0203	B-2E
C0204	B-2E
C0205	A-2F
C0206	A-3G
C0207	B-2F
C0208	B-2F
C0209	B-2F
C0210	B-2F
C0213	B-2F
C0214	A-2E
C0215	A-3E
C0216	B-3G
C0217	B-2E
C0218	A-2E
C0219	A-2E
C0224	A-3D
C0226	A-3E
C0227	A-2D
C0228	A-2D
C0229	A-3D
C0230	B-2E
C0231	B-3D
C0232	B-2E
C0235	A-2D
C0237	A-2D
C0238	B-2E
C0240	B-1E
C0242	A-1E
C0243	A-1E
C0244	A-1E
C0245	A-1E
C0246	B-1E
C0247	B-1G
C0248	A-1E
C0249	A-1E
C0250	A-1F
C0251	A-1F
C0252	B-1G
C0253	A-2F
C0254	B-2G
C0255	A-2F
C0256	A-2F
C0257	B-3G
C0258	A-2F
C0259	A-2F
C0260	A-2F
C0261	B-2G
C0262	B-2G
C0263	B-2F
C0264	B-2G
C0265	B-2G
C0266	A-2G
C0267	A-2G
C0270	B-2G
C0271	B-2G
C0272	B-2F
C0275	B-3G
C0350	B-3H
C0351	B-3H
C0352	B-3H
C0353	A-3H
C0354	A-4H
C0355	A-3H
C0356	A-4H
C0357	B-4H
C0358	B-4H
C0359	B-4H
C0360	B-4H
C0362	B-4G
C0364	B-3H
C0365	A-3H
C0368	A-3H
C0391	B-6J
C0392	B-7K
C0401L	A-4F
C0401R	A-4E
C0402L	A-4F
C0402R	A-4D
C0403L	A-4F
C0403R	A-4E
C0404L	A-4F
C0404R	A-4E
C0405L	A-4F
C0405R	A-4D
C0406L	B-5F
C0406R	B-5E
C0407L	B-5E
C0407R	A-4D
C0408L	A-5F
C0408R	A-5D
C0409L	A-5F
C0409R	A-5D
C0410L	A-5F
C0410R	A-5E
C0411L	A-5F
C0411R	A-5E
C0412L	B-5F
C0412R	B-5E
C0413	B-5F
C0415L	B-5F
C0415R	A-5E
C0416	A-5F
C0417L	A-5F
C0417R	A-5E
C0418L	A-5E
C0418R	A-5E
C0419L	A-5E
C0419R	A-5E
C0420	B-5F
C0421	A-5E
C0422	B-5E
C0423	B-4E
C0424L	B-4F
C0425	A-4E
C0426	A-4E
C0428	B-4E
C0430L	A-6D
C0430R	B-6D
C0431L	A-6E
C0431R	B-5E
C0432	B-6E
C0439	B-6E
C0441L	A-4F
C0441R	A-4E
C0443	A-4E
C0445	A-5E
C0457L	B-5F
C0458	B-6E
C0459	B-6E
C0460	B-6E
C0461	B-6E
C0462L	B-4F
C0462R	B-5E
C0551	A-1I
C0552	A-1I
C0553	A-1I
C0555	A-2J
C0556	A-2J
C0557	B-2J
C0558	A-1J
C0559	A-3I
C0560	A-2I
C0561	A-3I
C0562	A-2I
C0563	A-2I
C0570	B-2I
C0571	B-2I
C0573	B-3J
C0577	B-2I
C0579	B-1J
C0581	B-1I
C0582	A-1H
C0585	A-2H
C0586	A-2H
C0588	A-2H
C0589	A-2H
C0590	B-1I
C0591	A-1H
C0601	A-6J
C0602	B-6J
C0603	A-6J
C0604	A-6J
C0605	A-6J
C0606	A-6J
C0607	A-5J
C0608	A-6J
C0609	A-5J
C0610	B-6H
C0612	B-6H
C0613	B-7I
C0614	B-7I
C0615	B-7I
C0616	B-7I
C0617	B-7I
C0618	B-6J
C0619	B-5J
C0636	A-6D
C0638	B-6D
C0639	B-6D
C0644	B-5D
C0645	B-5D
C0646	B-6C
C0647	B-6C
C0648	B-6C
C0649	B-6C
C0650	B-6C
C0656	B-6C
C0671	A-1D
C0672	B-1E
C0691	A-3J
C0692	A-3J
C0693	A-3J
C0694	A-3J
C0695	A-3J
C0696	A-3J
C0901	B-3I
C0902	B-3I
C0905	B-3I
C0906	A-3I
C0907	B-5H
C0908	A-5J
C0909	B-3J
C0910	B-3I
C0911	B-3I
C0915	A-4I
C0916	A-5I
C0917	A-5I
C0918	A-5I
C0919	A-5H
C0920	A-5H
C0921	B-5H
C0923	A-5J
C0924	A-5K
C0925	A-5K
C0927	A-6K
C0928	A-6K
C0930	B-1G
C0931	A-3I
C0932	B-5H
C0933	A-5I
C0934	A-4I
C0935	B-6I
C0936	B-3I
C0939	B-4I
C0940	A-3I
C1101	A-1C
C1102	B-1C
C1103	A-1C
C1104	A-1C
C1106	B-1C
C1107	B-2B
C1108	B-2B
C1109	B-1B
C1110	A-1B
C1111	B-1B
C1113	B-1B
C1116	A-2A
C1117	A-2A
C1118	A-2A
C1119	A-2A
C1120	A-2A
C1121	A-2A
C1122	A-2A
C1124	A-2A
C1125	A-2A
C1126	A-2A
C1127	B-2B
C1128	B-2B
C1129	B-2B
C1130	A-1B
C1131	A-1B
C1132	A-2C
C1133	B-2B
C1134	A-3B
C1135	B-3B
C1136	A-3B
C1137	A-3B
C1138	A-3B
C1139	B-3B
C1141	B-2A
C1142	B-2A
C1143	B-2A
C1144	B-3C
C1145	A-2C
C1146	A-2C
C1147	B-2C
C1148	A-2C
C1149	A-2C
C1150	B-2B
C1151	B-2B
C1152	B-2B
C1153	A-1C
C1154	A-1C
C1156	A-5C
C1158	A-4A
C1159	B-4B
C1160	A-3B
C1161	A-3B
C1162	A-3C
C1163	B-4B
C1164	B-4B
C1165	B-4B
C1166	B-4C
C1167	B-4C
C1168	B-4B
C1169	A-3C
C1170	A-3C
C1173	B-1C
C1174	B-1C
C1201	A-4A
C1202	B-4A
C1203	B-3A
C1204	B-3A
C1205	B-3A
C1206	B-3A
C1207	A-4A
C1208	A-3A
C1209	A-3A
C1210	A-3A
C1211	A-3A
C1212	A-3A
C1301	A-4B
C1302	A-4B
C1303	A-5A
C1304	A-5A
C1305	B-5B
C1306	B-4B
C1307	B-4B
C1308	B-4A
C1309	B-4A
C1310	A-4A
C1311	B-5B
C1312	A-5B
C1313	B-4B
C1317	B-4B
C1318	B-4A
C1319	B-4B
C1320	B-4B
CP	
CP0202	B-2D
CP0203	B-2D
CP0204	B-3F
CP0205	B-2F
CP0206	B-1F
CP1101	B-3B
D	
D0101	A-4D
D0102	A-3D
D0352	A-4H
D0394	B-7J
D0401	B-5E
D0551	B-2H
D0554	A-2I
D0556	A-1H
D0601	B-6J
D0901	A-5J
D0902	A-5I
D0905	B-5I
D1101	B-1B
D1102	A-2C
D1103	A-3A
D1104	B-4B
D1303	B-3B
HLD	
HLD0901	A-6I
IC	
IC0101	A-5D
IC0102	A-2D
IC0201	A-2E
IC0202	B-4G
IC0203	A-3G
IC0204	A-4H
IC0401	A-5E
IC0551	A-2I
IC0601	B-6I
IC0631	B-6D
IC0671	B-1D
IC0901	B-4I
IC0902	A-3I
IC0903	A-4J
IC0904	A-5H
IC0907	B-4A
IC1101	B-1B
IC1102	A-2A
IC1103	A-2B
IC1104	B-2B
IC1106	A-4B
IC1107	A-5B
IC1201	B-3A
IC1301	B-5B
IC1302	B-4B
JK	
JK0200	A-6K
JK0201	A-3K
L	
L0101	B-4D
L0102	B-5D
L0103	B-5D
L0104	B-3C
L0105	A-1D
L0107	B-2C
L0108	B-2C
L0109	B-1D
L0110	B-2D
L0111	B-2C
L0170	B-3G
L0171	A-3G
L0172	A-2G
L0201	B-3F
L0203	B-2E
L0204	B-2G
L0206	A-3H
L0207	B-1F
L0350	B-4H
L0401	A-4E
L0552	B-2H
L0553	B-2I
L0554	B-2J
L0556	B-2H
L0558	B-1J
L0560	A-2H
L0561	A-2H
L0562	A-2H
L0601	B-7H
L0901	B-2J
L0902	A-5H
L0903	A-1G
L1101	B-2A
L1102	B-2A
L1103	B-2A
L1106	A-3B
L1109	B-3C
L1110	B-4C
L1301	A-5B
L1302	A-3A
PG	
PG0101	B-4C
PG0401	A-5E
PG0551	A-1G
PG0601	A-6F
PG0602	B-2K
PG0603	A-6C
PG0604	B-1D
PG0901	B-5K
PG0902	A-2K
PG0903	A-1G
PG1101	B-2C
PG1102	A-1F
PG1301	A-5B
Q	
Q0101	B-4D
Q0102	A-4C
Q0103	A-5C
Q0104	B-4C
Q0105	B-4D
Q0107	B-1D
Q0108	B-5D
Q0109	B-5D
Q0110	B-5C
Q0111	A-1D
Q0112	A-1D
Q0116	B-1D
Q0117	B-3D
Q0120	B-3D
Q0123	A-3C
Q0140	B-2D
Q0170	B-3G
Q0171	A-3G
Q0173	B-4F
Q0175	A-4F
Q0176	A-3F
Q0201	A-2G
Q0202	A-2F
Q0203	B-2F
Q0206	B-3F
Q0208	B-3F
Q0209	A-3F
Q0210	B-2E
Q0216	A-3E
Q0217	B-1D
Q0219	B-3G
Q0221	B-3G
Q0224	B-2G
Q0225	B-1G
Q0226	B-2G
Q0228	B-2G
Q0229	B-2F
Q0231	B-2F
Q0232	B-1G
Q0350	A-4I
Q0352	A-4H
Q0353	A-3H
Q0356	A-4H
Q0390	B-7J
Q0401L	B-6F
Q0401R	B-5E
Q0402	B-6F
Q0403L	A-5E
Q0403R	B-5E
Q0404	B-6E
Q0407	B-5E
Q0408L	B-4F
Q0409	B-6E
Q0410	B-6E
Q0551	B-2H
Q0553	A-1I
Q0554	A-1I
Q0556	A-1H
Q0102	A-4C
Q0103	A-5C
Q0104	B-4C
Q0105	B-4D
Q0107	B-1D
Q0108	B-5D
Q0109	B-5D
Q0110	B-5C
Q0111	A-1D
Q0112	A-1D
Q0116	B-1D
Q0117	B-3D
Q0120	B-3D
Q0123	A-3C
Q0140	B-2D
Q0170	B-3G
Q0171	A-3G
Q0173	B-4F
Q0175	A-4F
Q0176	A-3F
Q0201	A-2G
Q0202	A-2F
Q0203	B-2F
Q0206	B-3F
Q0208	B-3F
Q0209	A-3F
Q0210	B-2E
Q0216	A-3E
Q0217	B-1D
Q0219	B-3G
Q0221	B-3G
Q0224	B-2G
Q0225	B-1G
Q0226	B-2G
Q0228	B-2G
Q0229	B-2F
Q0231	B-2F
Q0232	B-1G
Q0350	A-4I
Q0352	A-4H
Q0353	A-3H
Q0356	A-4H
Q0390	B-7J
Q0401L	B-6F
Q0401R	B-5E
Q0402	B-6F
Q0403L	A-5E
Q0403R	B-5E
Q0404	B-6E
Q0407	B-5E
Q0408L	B-4F
Q0409	B-6E
Q0410	B-6E
Q0551	B-2H
Q0553	A-1I
Q0554	A-1I
Q0556	A-1H
Q0557	A-2H
Q0602	B-5H
Q0691	A-3J
Q0692	A-3I
Q0901	A-3J
Q0903	A-2J
Q0904	A-3J
Q0905	A-5K
Q0908	A-4J
Q1101	A-1B
Q1103	B-3B
Q1104	A-3C
Q1105	B-3C
Q1106	A-1C
Q1107	A-1C
Q1109	B-4B
Q1110	B-3B
Q1201	A-4A
Q1202	A-4A
QF	
QF1301	A-5C
R	
R0101	A-5C
R0102	A-5C
R0103	A-4C
R0104	A-4C
R0105	A-4D
R0106	A-4D
R0107	A-4D
R0108	A-4D
R0109	A-4D
R0110	A-4D
R0111	A-4D
R0112	A-4D
R0113	B-4C
R0114	B-4C
R0115	B-1C
R0116	B-1D
R0117	B-4E
R0118	B-2D
R0119	B-4C
R0120	B-4D
R0121	B-5D
R0122	B-5D
R0123	B-5D
R0124	B-5D
R0125	B-5D
R0127	B-4D
R0128	B-4D
R0129	B-4D
R0130	B-4D
R0132	A-3D
R0133	A-3D
R0138	A-1D
R0140	B-2D
R0141	B-2D
R0142	B-2D
R0143	A-1D
R0144	A-1D
R0145	A-1D
R0146	A-1E
R0147	A-1D
R0148	A-1E
R0149	A-1E
R0150	A-2D
R0151	A-3D
R0152	B-2C
R0154	A-3D
R0156	B-1D
R0157	A-3D
R0158	A-3D
R0159	A-3C
R0160	A-3C
R0161	A-4C
R0163	A-2D
R0164	A-2D
R0165	B-4E
R0166	B-2D
R0167	A-4C
R0168	A-3G
R0170	A-3G
R0171	A-3G
R0172	A-3G
R0173	A-3G
R0174	A-3G
R0175	A-2G
R0176	B-4F
R0180	A-4G
R0181	A-4G
R0182	B-4G
R0183	A-4G
R0184	B-4F
R0185	B-4F
R0186	B-4F
R0187	B-4F
R0188	B-4F
R0190	B-4G
R0191	A-4F
R0192	A-4F
R0193	A-4F
R0194	A-4F
R0196	A-3F
R0198	B-4G
R0199	B-4G
R0201	B-3F
R0202	B-3F
R0203	B-2E
R0205	A-2E
R0207	B-3F
R0208	A-3F
R0209	A-2G
R0213	B-2E
R0215	A-2D
R0216	A-3E
R0218	B-2E
R0219	A-2D
R0222	B-2E
R0223	A-2D
R0224	A-2D
R0225	B-1E
R0227	B-2E
R0228	B-2E
R0229	B-1E
R0236	A-1E
R0239	A-2F
R0240	A-3F
R0241	A-2F
R0243	B-2G
R0244	B-2F
R0245	B-2F
R0246	B-2F
R0247	A-2G
R0248	A-2G
R0253	B-1E
R0254	B-4F
R0255	B-2G
R0257	B-1G
R0258	B-2G
R0259	B-1G
R0260	B-2F
R0261	B-2G
R0267	B-2G
R0268	B-2G
R0270	B-2G
R0271	B-1G
R0272	B-1G
R0274	B-3F
R0292	B-3F
R0293	B-2F
R0294	B-2F
R0295	B-2F
R0296	B-2F
R0298	B-2F
R0299	A-2F
R0350	B-3H
R0351	A-3H
R0355	A-4I
R0356	A-4I
R0357	A-4I
R0358	A-4H
R0359	A-4H
R0362	A-4I
R0364	A-3H
R0366	A-3H
R0367	A-4H
R0371	A-3H
R0373	A-3H
R0374	A-4H
R0390	B-6J
R0391	B-6J
R0392	B-6J

IDENTIFICATION OF PARTS LOCATION

MAIN [VCA] 2/2

Symbol No.	Parts Location
R0397	B-3J
R0401L	A-5F
R0401R	B-5E
R0402L	B-6E
R0402R	A-5E
R0403L	B-6F
R0403R	A-5D
R0404L	B-5F
R0404R	B-5D
R0405	B-4E
R0409	A-5E
R0410	A-4F
R0413L	B-5F
R0413R	B-5F
R0414	B-6F
R0415	A-5F
R0417L	A-6E
R0417R	B-5D
R0418L	A-5E
R0418R	B-5D
R0419L	A-6E
R0419R	B-6E
R0428	B-6E
R0429L	A-5E
R0429R	B-5E
R0435	B-5F
R0436L	A-4F
R0436R	A-4E
R0445	A-4F
R0447	A-4E
R0460	B-5E
R0461L	B-5E
R0462L	B-5E
R0463L	B-5F
R0464	B-6E
R0465	B-6E
R0466	B-6E
R0467	B-6E
R0468	B-6E
R0469	B-6E
R0470	B-6E
R0551	A-1I
R0552	A-1I
R0553	A-1I
R0558	A-2J
R0560	A-1J
R0563	A-2I
R0564	A-2I
R0565	A-2I
R0570	A-2I
R0571	A-2I
R0575	A-1J
R0577	A-1J
R0578	A-1J
R0583	A-1J
R0584	A-1J
R0586	A-1I
R0588	A-1I
R0591	A-2H
R0592	A-2H
R0593	A-2I
R0594	A-2H
R0601	A-6J
R0602	A-6J
R0603	A-6J
R0606	A-5J
R0609	B-6J
R0610	A-5J
R0611	A-5J
R0612	A-5J
R0613	A-5J
R0614	A-5I
R0616	B-6H
R0619	B-7I
R0620	B-7I
R0621	B-7I
R0622	B-7I
R0624	B-6J
R0631	A-6D
R0632	A-6D
R0636	A-6D
R0641	B-5D
R0642	B-6C
R0661	B-2J
R0662	B-2J
R0663	A-5I
R0671	B-1E
R0672	B-1E
R0681	B-5H
R0682	A-6H
R0688	A-3I
R0689	A-3I
R0691	A-3J
R0692	A-3J
R0693	A-3J
R0694	A-3J
R0695	A-3J
R0696	A-3J
R0697	A-3J
R0698	A-3J
R0699	A-3J
R0715	A-4I
R0718	A-4H
R0720	A-5H
R0723	A-1G
R0728	A-3J
R0729	B-5I
R0730	B-5I
R0731	A-4J
R0737	B-4J
R0901	A-3I
R0902	A-3I
R0903	A-3I
R0904	B-3J
R0905	A-3I
R0906	B-2J
R0907	B-3J
R0908	A-3J
R0909	A-3J
R0910	A-3J
R0911	A-3J
R0912	B-4J
R0913	A-4J
R0914	A-4J
R0915	B-4J
R0916	B-4J
R0917	B-5J
R0918	B-5J
R0919	A-4J
R0920	A-5J
R0921	A-4J
R0922	A-4J
R0923	B-5J
R0924	B-4J
R0925	A-4J
R0926	A-4J
R0929	A-4H
R0930	A-3J
R0931	A-4I
R0932	A-4J
R0933	A-4J
R0935	A-4I
R0937	A-4I
R0938	A-4I
R0939	A-4I
R0940	A-4I
R0942	B-4I
R0943	B-4I
R0944	B-4I
R0945	A-5I
R0946	A-5I
R0949	A-5I
R0953	A-4I
R0957	A-5K
R0959	A-5J
R0962	A-6K
R0963	A-6K
R0964	A-5K
R0965	A-5K
R0966	A-5K
R0967	A-5K
R0968	B-5J
R0969	B-5J
R0970	A-4J
R0971	A-5K
R0972	A-5K
R0973	B-4J
R0974	A-5K
R0975	A-6K
R0976	B-4I
R0977	B-5H
R0978	B-1K
R0979	B-1K
R0980	B-1K
R0981	B-1J
R0982	B-1J
R0983	B-1J
R0984	B-1J
R0985	B-1J
R0986	A-1K
R0987	A-1K
R0988	A-1K
R0989	A-1K
R0990	A-5I
R0991	B-4J
R0994	A-1J
R1102	A-1B
R1103	B-1B
R1104	A-1B
R1105	A-2A
R1106	A-2A
R1107	A-1B
R1108	A-1A
R1109	A-1B
R1110	A-1B
R1113	A-2C
R1114	A-3B
R1116	A-3B
R1117	A-3C
R1118	A-3B
R1119	A-3B
R1120	B-3B
R1121	B-3B
R1122	B-3B
R1123	B-3B
R1124	B-3C
R1125	B-3B
R1126	B-3B
R1130	A-2C
R1131	A-2C
R1132	A-1C
R1133	A-1C
R1134	A-1C
R1135	A-1C
R1139	B-4C
R1140	B-4B
R1141	B-4C
R1142	B-4B
R1143	B-5C
R1146	A-3B
R1147	A-3B
R1148	B-4C
R1149	B-4C
R1150	B-4C
R1151	B-4C
R1152	A-3B
R1153	A-3C
R1158	B-4B
R1159	B-4B
R1162	B-4B
R1164	B-3B
R1171	B-5C
R1172	A-2C
R1201	A-4A
R1202	B-3A
R1203	B-3A
R1204	B-3A
R1205	A-4A
R1206	B-3A
R1207	A-4A
R1208	A-4A
R1209	A-4A
R1210	A-4A
R1211	A-3A
R1212	A-3A
R1213	A-4A
R1214	A-3A
R1215	A-3A
R1216	A-3A
R1217	A-3A
R1218	A-3A
R1220	A-3A
R1221	A-4A
R1222	B-4A
R1224	B-3A
R1301	A-4B
R1302	A-4B
R1303	A-4C
R1304	A-4C
R1305	B-5B
R1308	A-5A
R1309	A-5A
R1310	B-5B
R1313	B-4B
R1315	B-4A
R1316	B-4A
R1317	A-4A
R1322	A-5A
R1323	A-5A
R1330	B-3B
R1331	A-3A
R1332	A-3A
R1335	A-3A
R1336	A-3A
RT	
RT0103	A-2D
RT0202	A-3F
RT0203	A-3E
RT0204	A-2F
RT0205	A-2F
RT0206	A-3F
RT0207	A-3G
RT0209	A-2G
RT0210	A-3G
RT0211	A-4F
RT0212	A-4G
RT0214	A-3F
RT0215	A-2F
RT0216	A-3G
RT0217	A-2F
SW	
SW0901	B-1K
T	
T0551	B-1H
TL	
TL1139	A-2C
TL1301	B-5B
TL1302	B-5A
TL1303	B-5A
TL1304	B-5A
TL1305	B-5A
TL1306	B-5A
TL1307	B-4A
TL1308	B-5A
TL1309	B-4A
TL1311	B-4A
TL1312	B-4A
TL1313	B-4A
TL1314	B-5A
TP	
TP0101	A-2D
TP0102	A-3D
TP0103	A-1D
TP0201	A-2D
TP0202	A-2F
TP0203	A-2D
TP0204	A-1F
TP0205	A-2E
TP0206	A-3E
X	
X0201	B-2D
X0901	B-3I
X0902	A-5J
X1101	B-2B

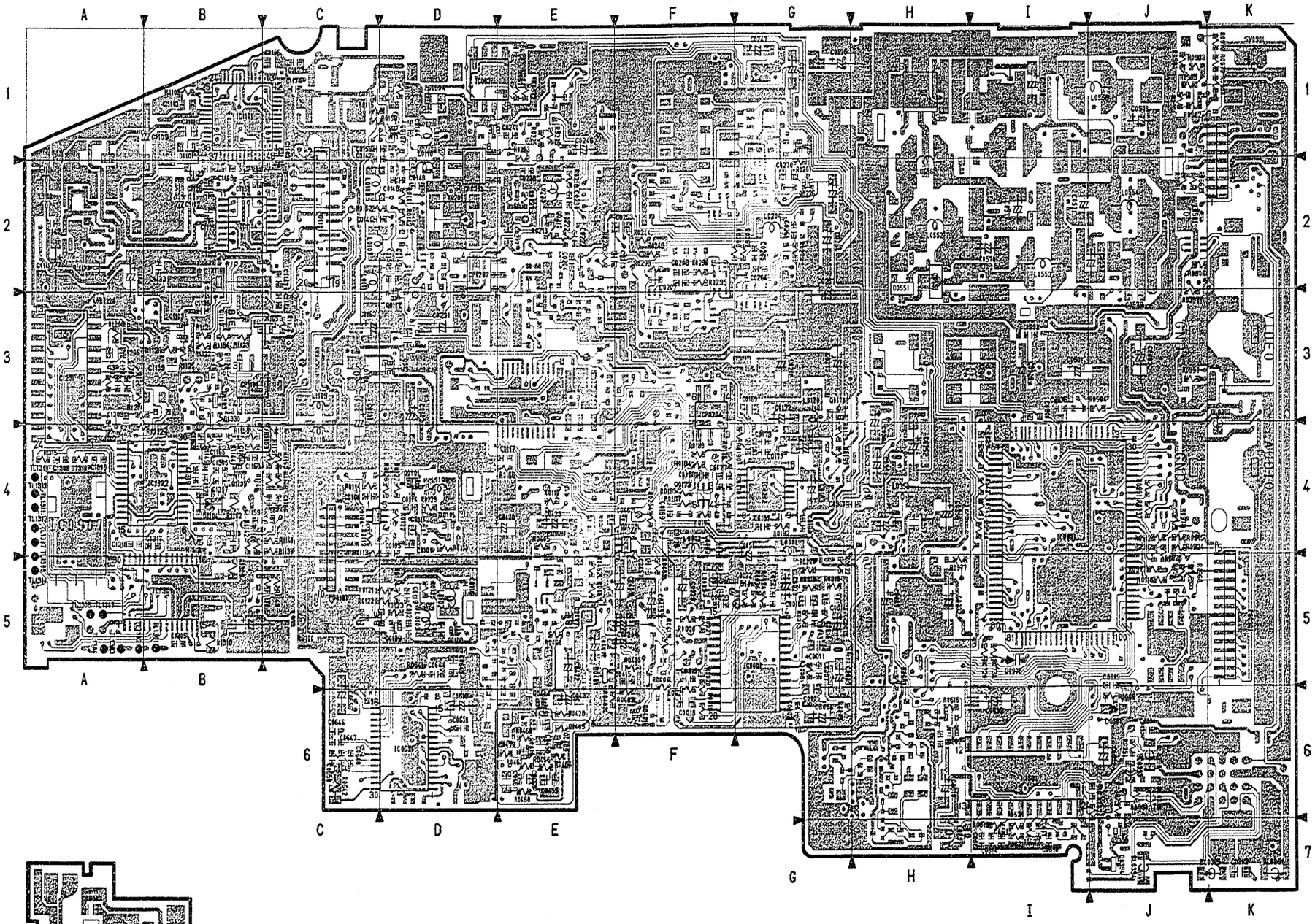
DIFFERENCE TABLE
VCA[MAIN] – SIDE B –

NOTE: This table listes the different components marked with asterisks(*) in the circuit board diagrams.

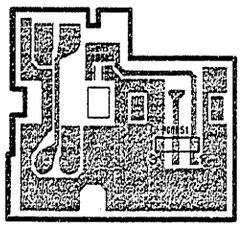
SYMBOL No.	TYPE220	TYPE520	TYPE521
C0001	×	×	○
C0002	×	×	○
C0003	×	×	○
C0004	×	×	○
C0005	×	×	○
C0006	×	×	○
C0007	×	×	○
C0011	×	×	○
C0013	×	×	○
C0014	×	×	○
C0015	×	×	○
C0016	×	×	○
C0018	×	×	○
C0019	×	×	○
C0020	×	×	○
C0021	×	×	○
C0022	×	×	○
C0023	×	×	○
C0028	×	×	○
C0029	×	×	○
C0273	×	×	○
C0413	×	○	○
C0420	×	○	○
C0439	×	○	○
C0458	×	○	○
C0459	×	○	○
C0460	×	○	○
C0461	×	○	○
C1164	×	○	○
C1165	×	○	○
IC0001	×	×	○
L0001	×	×	○
L0002	×	×	○
L0003	×	×	○
Q0409	×	○	○
Q0410	×	○	○
R0005	×	×	○
R006	×	×	○
R0013	×	×	○
R0014	×	×	○
R0015	×	×	○
R0018	×	×	○
R0019	×	×	○
R0020	×	×	○
R0021	×	×	○

SYMBOL No.	TYPE220	TYPE520	TYPE521
R0022	×	×	○
R0023	×	×	○
R0024	×	×	JUMPER
R0025	×	×	○
R0026	×	×	○
R0027	×	×	○
R0028	×	×	○
R0464	×	○	○
R0465	×	○	○
R0466	×	○	○
R0467	×	○	○
R0468	×	○	○
R0469	×	○	○
R0470	×	○	○
R1144	JUMPER	×	×
R1145	JUMPER	×	×
R1158	×	○	○
R1159	×	○	○

VCA. OPT CIRCUIT BOARDS -SIDE·B-
-TYPE 220. 520. 521-

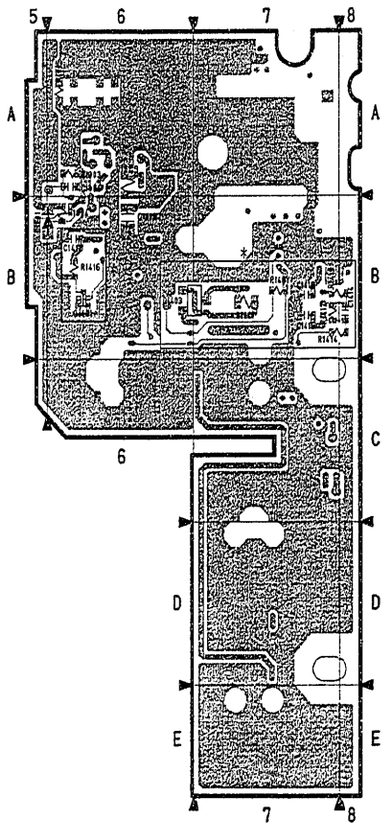


VCA(MAIN)-SIDE B-
[PATTERN No.JA1248-5]

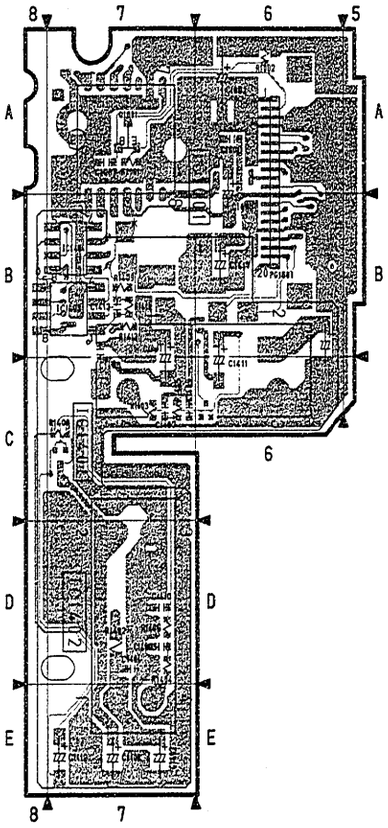


OPT(OPTICAL)-SIDE B-
[PATTERN No.JA1248-5]
-TYPE 521 ONLY-

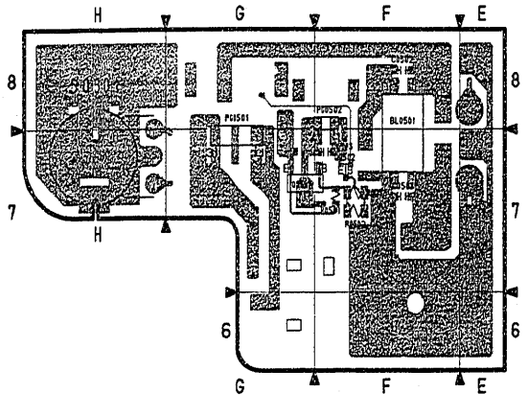
SPE. DCS. CRE. HTS9551C CIRCUIT BOARDS -TYPE 220. 520. 521-



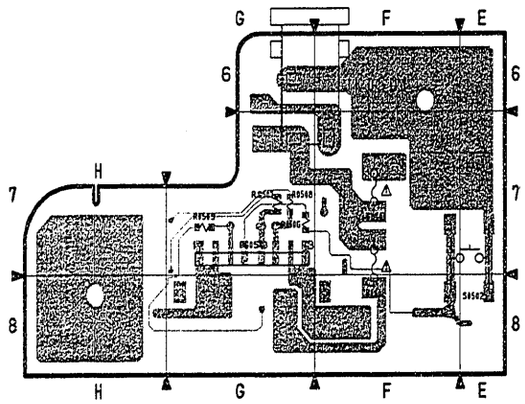
SPE(SENSOR/GYRO)
-SIDE A-
[PATTERN No.JA1248-5]



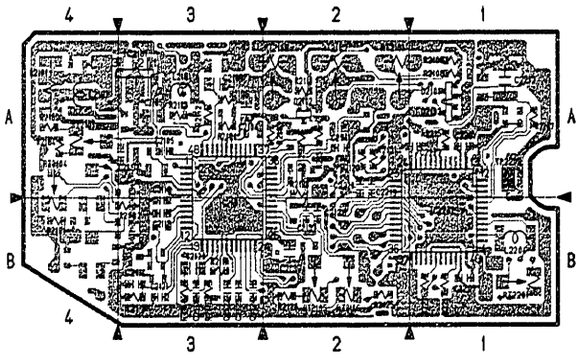
SPE(SENSOR/GYRO)
-SIDE B-



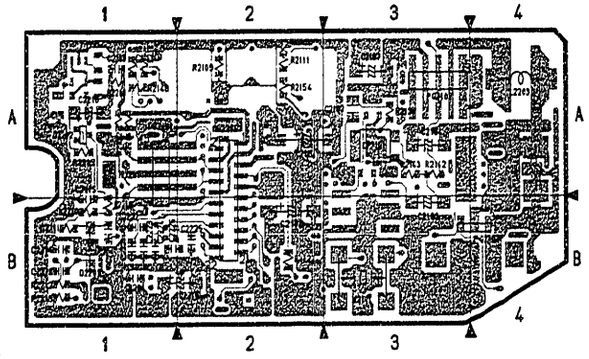
DCS(DC/SWITCH)-SIDE B-



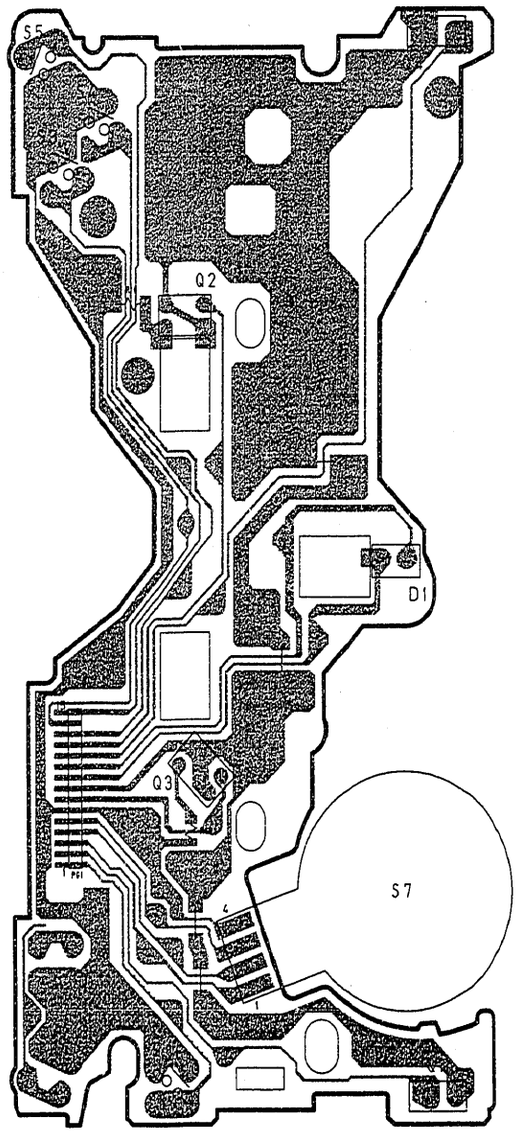
DCS(DC/SWITCH)-SIDE A-
[PATTERN No.JA1248-5]



CRE(COLOR EVF)-SIDE A-
[PATTERN No.JA1119-5]



CRE(COLOR EVF)-SIDE B-



TROUBLE SENSOR(HTS9551C)
[PATTERN No.155190-2]

IDENTIFICATION OF PARTS LOCATION

SPE [SENSOR/GYRO]

Symbol No.	Parts Location
C	
C1002	B-6A
C1003	A-6B
C1004	A-6A
C1005	B-6B
C1006	B-6A
C1007	B-7A
C1401	B-7B
C1402	B-7E
C1403	B-7C
C1404	B-7D
C1405	B-6C
C1406	B-7E
C1407	B-7C
C1408	B-7D
C1409	B-7C
C1410	B-7D
C1411	B-6C
C1412	B-7E
C1413	B-7B
C1414	A-6B
C1415	A-7B
C1416	A-7B
C1417	B-6B
C1418	A-6B
D	
D1001	A-5B
D1403	A-6B
IC	
IC1001	B-7A
IC1401	B-7C
IC1402	B-7D
IC1403	B-7B
IC1404	B-7B
PG	
PG1001	B-6B
Q	
Q1001	B-7A
Q1401	A-6B
R	
R1001	B-7A
R1002	B-6A
R1003	A-6A
R1004	A-6B
R1005	A-6A
R1009	A-6A
R1401	A-7B
R1402	B-7D
R1403	B-7C
R1404	B-7D
R1405	B-7C
R1406	B-7D
R1407	A-7B
R1408	B-7C
R1409	B-7B
R1410	A-7B
R1411	B-7B

Symbol No.	Parts Location
R1412	A-7B
R1413	B-7B
R1414	A-7B
R1416	A-6B

CRE [COLOR EVF]

Symbol No.	Parts Location
C	
C2102	B-3A
C2104	A-3A
C2105	A-3A
C2106	A-3A
C2108	B-3B
C2110	A-3B
C2113	A-3B
C2114	A-3B
C2119	A-3B
C2120	A-3B
C2121	A-3B
C2122	A-3B
C2123	A-3B
C2124	A-3B
C2136	A-2B
C2137	A-2B
C2138	A-2B
C2141	A-2A
C2181	A-3A
C2182	B-2B
C2183	B-2A
C2184	B-3A
C2185	A-3A
C2187	B-3A
C2203	B-1A
C2204	B-1B
C2205	A-1B
C2207	A-1A
C2211	B-4A
C2212	B-1B
C2213	B-1B
C2214	B-1B
C2215	B-1A
C2216	B-1A
C2217	A-1A
C2218	B-2B
C2219	A-2A
C2220	A-2A
C2221	B-1B
C2222	B-1B
C2223	B-1B
C2224	B-1B
C2225	B-2B
C2226	B-1B
C2227	A-1A
CP	
CP2101	B-3A
D	
D2101	A-1A
D2102	A-2A
D2103	A-1A
D2201	B-1B
D2202	B-1A
IC	
IC2101	A-3B
IC2181	A-3A

Symbol No.	Parts Location
IC2202	A-1B
L	
L2181	A-3A
L2182	A-4A
L2203	B-4A
L2204	A-1B
PG	
PG2102	B-3A
PG2104	B-1A
PG2201	B-2A
PG2203	B-4B
R	
R2101	A-4B
R2102	A-3B
R2103	A-2A
R2104	A-3A
R2105	A-3A
R2106	A-1A
R2107	B-1A
R2108	A-1A
R2109	B-2A
R2110	A-2A
R2111	B-2A
R2112	A-3A
R2113	A-3A
R2115	A-3B
R2118	A-3B
R2119	A-3B
R2120	A-2A
R2121	A-2A
R2122	B-2B
R2125	A-2B
R2126	A-2B
R2128	A-2A
R2129	A-2A
R2139	B-3A
R2140	A-3B
R2142	B-3A
R2143	B-3A
R2148	B-1A
R2151	A-2A
R2153	B-1A
R2154	B-2A
R2181	A-4A
R2182	A-4A
R2184	A-4A
R2202	B-1A
R2203	B-1A
R2204	B-1A
R2207	A-1A
R2208	B-1B
R2209	B-1A
R2210	B-1B
R2211	B-1B
R2212	B-1B
R2213	B-1B
R2215	A-1A

Symbol No.	Parts Location
R2216	A-1B
R2217	A-1B
RT	
RT2101	A-2A
RT2102	A-2A
RT2103	A-2A
RT2104	A-4A
RT2105	A-2B
RT2106	A-2B
RT2181	A-4A
RT2201	A-1B
TP	
TP2201	B-1A
TP2202	A-1A
X	
X2101	B-3B

DCS [DC/SWITCH]

Symbol No.	Parts Location
BL	
BL501	B-8F
C	
C501	B-7F
C502	B-8F
C503	B-7F
F	
F501	A-7F
F502	A-7F
JK	
JK501	A-6F
PG	
PG501	B-7G
PG502	B-8F
PG503	A-7G
Q	
Q501	B-7G
Q502	B-7F
R	
R501	B-7F
R502	B-7F
R503	B-7F
R506	A-7G
R507	A-7G
R508	A-7G
R509	A-7G
S	
S501	B-7H
S502	A-8E

DIFFERENCE TABLE

SPE[SENSOR/GYRO] – SIDE A –

NOTE: This table listes the different components marked with asterisks(＊) in the circuit board diagrams.

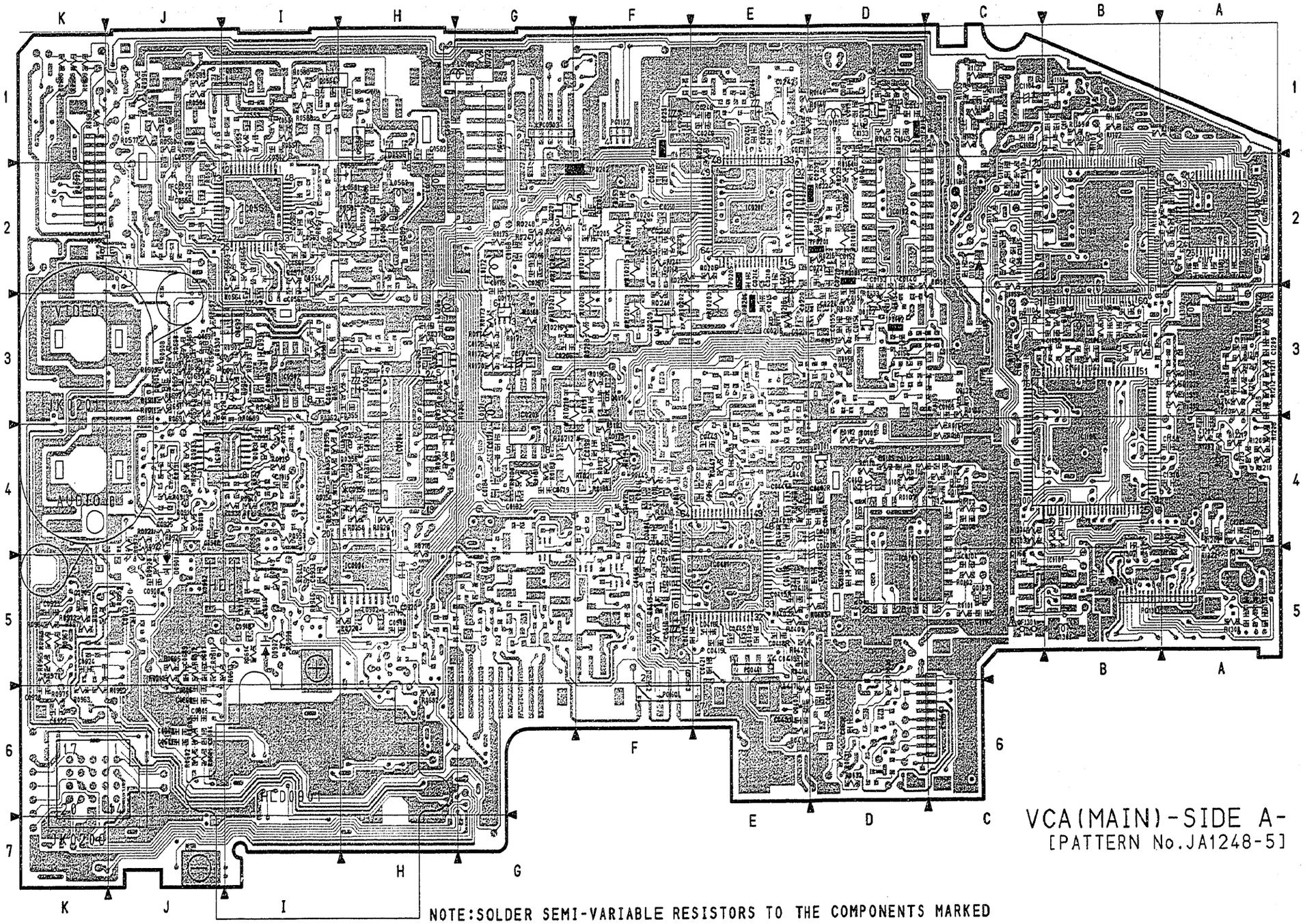
SYMBOL No.	TYPE220	TYPE520	TYPE521
C1414	×	○	○
C1415	×	○	○
C1416	×	○	○
C1418	×	○	○
D1403	×	○	○
Q1401	×	○	○
R1401	×	○	○
R1407	×	○	○
R1410	×	○	○
R1412	×	○	○
R1414	×	○	○
R1416	×	○	○

SPE[SENSOR/GYRO] – SIDE B –

NOTE: This table listes the different components marked with asterisks(＊) in the circuit board diagrams.

SYMBOL No.	TYPE220	TYPE520	TYPE521
C1401	×	○	○
C1402	×	○	○
C1403	×	○	○
C1404	×	○	○
C1405	×	○	○
C1406	×	○	○
C1407	×	○	○
C1408	×	○	○
C1409	×	○	○
C1410	×	○	○
C1411	×	○	○
C1412	×	○	○
C1413	×	○	○
C1417	×	○	○
IC1401	×	○	○
IC1402	×	○	○
IC1403	×	○	○
IC1404	×	○	○
R1402	×	○	○
R1403	×	○	○
R1404	×	○	○
R1405	×	○	○
R1406	×	○	○
R1408	×	○	○
R1409	×	○	○
R1411	×	○	○
R1413	×	○	○

VCA CIRCUIT BOARD -SIDE·A-
-TYPE 620. 720-



VCA(MAIN)-SIDE A-
[PATTERN No.JA1248-5]

NOTE:SOLDER SEMI-VARIABLE RESISTORS TO THE COMPONENTS MARKED "#" WHEN ADJUSTING THEM.

DIFFERENCE TABLE
VCA[MAIN] – SIDE A –

NOTE: This table listes the different components marked with asterisks (*) in the circuit board diagrams.

SYMBOL No.	TYPE620	TYPE720
C0356	○	×
L0903	○	×
PG0903	4P	5P
R0359	×	○
R0723	×	JUMPER

IDENTIFICATION OF PARTS LOCATION

MAIN [VCA] 1/2

Symbol No.	Parts Location
BL	
BL0393	B-4K
BL0394	B-7J
BL0395	B-7K
BL0396	B-7K
BL0397	B-6J
BL0398	B-6J
BL0399	B-6J
C	
C0001	B-4G
C0002	B-4F
C0003	B-6G
C0004	B-6G
C0005	B-6G
C0006	B-5G
C0007	B-5G
C0008	A-5G
C0009	A-5G
C0010	A-5G
C0011	B-5G
C0012	A-5G
C0013	B-5G
C0014	B-5G
C0015	B-5G
C0016	B-5G
C0017	A-5G
C0018	B-6F
C0019	B-5F
C0020	B-5G
C0021	B-5G
C0022	B-5G
C0023	B-5F
C0024	A-5F
C0025	A-4F
C0026	A-4G
C0028	B-4F
C0029	B-5F
C0101	B-4D
C0102	B-3D
C0103	A-5C
C0104	A-5C
C0105	B-4D
C0106	B-4C
C0108	A-4C
C0109	A-4C
C0110	A-4C
C0111	B-4D
C0112	A-4D
C0114	B-4D
C0115	B-1C
C0116	A-5D
C0117	B-4E
C0118	B-5D
C0119	B-5D
C0120	B-5D
C0121	B-5D
C0130	A-1E
C0131	B-3C
C0132	A-3C
C0134	A-1D
C0136	A-1D
C0137	A-1D
C0140	A-2D
C0141	B-2C
C0142	B-1C
C0143	A-1D
C0144	B-1D
C0145	A-1D
C0146	B-2D
C0148	B-2D
C0149	B-2D
C0150	B-2D
C0151	A-3D
C0152	A-2D
C0153	A-2D
C0154	A-3D
C0155	A-3D
C0156	A-3D
C0159	B-1C
C0163	B-3C
C0164	B-3D
C0165	A-3C
C0168	A-2G
C0169	B-3G
C0170	B-4G
C0171	A-4G
C0172	B-3G
C0173	B-4G
C0174	A-3G
C0175	A-2G
C0176	A-3G
C0177	B-4F
C0178	B-4F
C0179	A-4G
C0180	B-4G
C0181	B-4G
C0182	A-4G
C0183	B-4G
C0184	A-4G
C0185	B-4G
C0187	B-4G
C0188	B-4F
C0189	B-4F
C0190	A-4F
C0191	A-3F
C0204	B-2E
C0205	A-2F
C0206	A-3G
C0207	B-2F
C0208	B-2F
C0213	B-2F
C0214	A-2E
C0215	A-3E
C0216	B-3G
C0217	B-2E
C0218	A-2E
C0219	A-2E
C0224	A-3D
C0226	A-3E
C0227	A-2D
C0228	A-2D
C0229	A-3D
C0230	B-2E
C0231	B-3D
C0232	B-2E
C0235	A-2D
C0237	A-2D
C0238	B-2E
C0240	B-1E
C0242	A-1E
C0243	A-1E
C0244	A-1E
C0245	A-1E
C0246	B-1E
C0247	B-1G
C0248	A-1E
C0249	A-1E
C0250	A-1F
C0251	A-1F
C0252	B-1G
C0253	A-2F
C0254	B-2G
C0255	A-2F
C0256	A-2F
C0257	B-3G
C0258	A-2F
C0259	A-2F
C0260	A-2F
C0261	B-2G
C0263	B-2F
C0264	B-2G
C0265	B-2G
C0270	B-2G
C0271	B-2G
C0273	B-4H
C0275	B-3G
C0352	B-4H
C0353	A-3H
C0354	A-4H
C0357	B-4H
C0358	B-4H
C0359	B-4H
C0360	B-4H
C0363	A-4H
C0364	B-4H
C0365	A-3H
C0368	A-3H
C0391	B-6J
C0392	B-7K
C0401L	A-4F
C0402L	A-4F
C0403L	A-4F
C0404L	A-4F
C0405L	A-4F
C0406L	B-5F
C0407L	B-5E
C0408L	A-5F
C0409L	A-5F
C0410L	A-5F
C0411L	A-5F
C0412L	B-5F
C0413	B-5F
C0415L	B-5F
C0416	A-5F
C0417L	A-5F
C0418L	A-5E
C0419L	A-5E
C0420	B-5F
C0421	A-5E
C0422	B-5E
C0423	B-4E
C0424L	B-4F
C0425	A-4E
C0426	A-4E
C0428	B-4E
C0430L	A-6D
C0431L	A-6E
C0432	B-6E
C0439	B-6E
C0441L	A-4F
C0443	A-4E
C0445	A-5E
C0457L	B-5F
C0458	B-6E
C0459	B-6E
C0460	B-6E
C0461	B-6E
C0462L	B-4F
C0551	A-1I
C0552	A-1I
C0553	A-1I
C0555	A-2J
C0556	A-2J
C0557	B-2J
C0558	A-1J
C0559	A-3I
C0560	A-2I
C0561	A-3I
C0562	A-2I
C0563	A-2I
C0570	B-2I
C0571	B-2I
C0573	B-3J
C0577	B-2I
C0579	B-1J
C0581	B-1I
C0582	A-1H
C0585	A-2H
C0586	A-2H
C0588	A-2H
C0589	A-2H
C0590	B-1I
C0591	A-1H
C0601	A-6J
C0602	B-6J
C0603	A-6J
C0604	A-6J
C0605	A-6J
C0606	A-6J
C0607	A-5J
C0608	A-6J
C0609	A-5J
C0610	B-6H
C0612	B-6H
C0613	B-7I
C0614	B-7I
C0615	B-7I
C0616	B-7I
C0617	B-7I
C0618	B-6J
C0619	B-6J
C0636	A-6D
C0638	B-6D
C0639	B-6D
C0644	B-5D
C0645	B-5D
C0646	B-6C
C0647	B-6C
C0648	B-6C
C0649	B-6C
C0650	B-6C
C0656	B-6C
C0671	A-1D
C0672	B-1E
C0691	A-3J
C0692	A-3J
C0693	A-3J
C0694	A-3J
C0695	A-3J
C0696	A-3J
C0901	B-3I
C0902	B-3I
C0905	B-3I
C0906	A-3I
C0907	B-5H
C0908	A-5J
C0909	B-3J
C0910	B-3I
C0911	B-3I
C0915	A-4I
C0916	A-5I
C0917	A-5I
C0918	A-5I
C0919	A-5H
C0920	A-5H
C0923	A-5J
C0924	A-5K
C0925	A-5K
C0927	A-6K
C0928	A-6K
C0930	B-1G
C0931	A-3I
C0932	B-5H
C0933	A-5I
C0934	A-4I
C0935	B-6I
C0936	B-3I
C0939	B-4I
C0940	A-3I
C1101	A-1C
C1102	B-1C
C1103	A-1C
C1104	A-1C
C1106	B-1C
C1107	B-2B
C1108	B-2B
C1109	B-1B
C1110	A-1B
C1111	B-1B
C1113	B-1B
C1116	A-2A
C1117	A-2A
C1118	A-2A
C1119	A-2A
C1120	A-2A
C1121	A-2A
C1122	A-2A
C1124	A-2A
C1125	A-2A
C1126	A-2A
C1127	B-2B
C1128	B-2B
C1129	B-2B
C1130	A-1B
C1131	A-1B
C1133	B-2B
C1134	A-3B
C1135	B-3B
C1136	A-3B
C1137	A-3B
C1138	A-3B
C1139	B-3B
C1141	B-2A
C1142	B-2A
C1143	B-2A
C1144	B-3C
C1145	A-2C
C1146	A-2C
C1147	B-2C
C1148	A-2C
C1149	A-2C
C1150	B-2B
C1151	B-2B
C1152	B-2B
C1153	A-1C
C1154	A-1C
C1156	A-5C
C1158	A-4A
C1159	B-4B
C1160	A-3B
C1161	A-3B
C1162	A-3C
C1163	B-4B
C1164	B-4B
C1165	B-4B
C1166	B-4C
C1167	B-4C
C1168	B-4B
C1169	A-3C
C1170	A-3C
C1173	B-1C
C1174	B-1C
C1201	A-4A
C1202	B-4A
C1203	B-3A
C1204	B-3A
C1205	B-3A
C1206	B-3A
C1207	A-4A
C1208	A-3A
C1209	A-3A
C1210	A-3A
C1211	A-3A
C1212	A-3A
C1301	A-4B
C1302	A-4B
C1303	A-5A
C1304	A-5A
C1305	B-5B
C1306	B-4B
C1307	B-4B
C1308	B-4A
C1309	B-4A
C1310	A-4A
C1311	B-5B
C1312	A-5B
C1313	B-4B
C1317	B-4B
C1318	B-4A
C1319	B-4B
C1320	B-4B
CP	
CP0202	B-2D
CP0203	B-2D
CP0204	B-3F
CP1101	B-3B
D	
D0001	A-4G
D0101	A-4D
D0352	A-4H
D0394	B-7J
D0401	B-5E
D0551	B-2H
D0554	A-2I
D0556	A-1H
D0601	B-6J
D0901	A-5J
D0902	A-5I
D0905	B-5I
D1101	B-1B
D1102	A-2C
D1103	A-3A
D1104	B-4B
D1303	B-3B
HLD	
HLD0901	A-6I
IC	
IC0001	B-5G
IC0101	A-5D
IC0102	A-2D
IC0201	A-2E
IC0202	B-4G
IC0203	A-4G
IC0204	A-4H
IC0401	A-5E
IC0551	A-2I
IC0601	B-6I
IC0631	B-6D
IC0671	B-1D
IC0901	B-4I
IC0902	A-3I
IC0903	A-4J
IC0904	A-5H
IC0907	B-4A
IC1101	B-1B
IC1102	A-2A
IC1103	A-2B
IC1104	B-2B
IC1106	A-4B
IC1107	A-5B
IC1201	B-3A
IC1301	B-5B
IC1302	B-4B
JK	
JK0200	A-6K
JK0201	A-3K
L	
L0001	B-4G
L0002	B-4F
L0003	B-5F
L0101	B-4D
L0102	B-5D
L0103	B-5D
L0104	B-3C
L0105	A-1D
L0107	B-2C
L0108	B-2C
L0109	B-1D
L0110	B-2D
L0111	B-2C
L0170	B-3G
L0171	A-3G
L0172	A-2G
L0203	B-2E
L0204	B-2G
L0206	A-3H
L0350	B-4H
L0401	A-4E
L0552	B-2H
L0553	B-2I
L0554	B-2J
L0555	B-2H
L0558	B-1J
L0560	A-2H
L0561	A-2H
L0562	A-2H
L0601	B-7H
L0901	B-2J
L0902	A-5H
L1101	B-2A
L1102	B-2A
L1103	B-2A
L1106	A-3B
L1109	B-3C
L1110	B-4C
L1301	A-5B
L1302	A-3A
PG	
PG0001	A-5F
PG0101	B-4C
PG0401	A-5E
PG0551	A-1G
PG0601	A-6F
PG0602	B-2K
PG0603	A-6C
PG0604	B-1D
PG0901	B-5K
PG0902	A-2K
PG0903	A-1G
PG1101	B-2C
PG1102	A-1F
PG1301	A-5B
Q	
Q0001	A-5G
Q0003	A-5F
Q0004	A-5F
Q0005	A-4G
Q0101	B-4D
Q0102	A-4C
Q0103	A-5C
Q0104	B-4C
Q0105	B-4D
Q0107	B-1D
Q0108	B-5D
Q0109	B-5D
Q0110	B-5C
Q0112	A-1D
Q0117	B-3D
Q0120	B-3D
Q0123	A-3C
Q0170	B-3G
Q0171	A-3G
Q0173	B-4F
Q0175	A-4F
Q0176	A-3F
Q0210	B-2E
Q0216	A-3E
Q0217	B-1D
Q0218	A-1E
Q0225	B-1G
Q0226	B-2G
Q0350	A-4I
Q0352	A-4H
Q0353	A-3H
Q0356	A-4H
Q0390	B-7J
Q0401L	B-6F
Q0403L	A-6E
Q0404	B-6E
Q0407	B-5E
Q0408L	B-4F
Q0409	B-6E
Q0410	B-6E
Q0551	B-2H
Q0553	A-1I
Q0554	A-1I
Q0555	A-1H
Q0557	A-2H
Q0602	B-6H
Q0691	A-3J
Q0692	A-3I
Q0901	A-3J
Q0903	A-2J
Q0904	A-3J
Q0905	A-5K
Q0908	A-4J
Q1101	A-1B
Q1103	B-3B
Q1104	A-3C
Q1105	B-3C
Q1106	A-1C
Q1107	A-1C
Q1109	B-4B
Q1110	B-3B
Q1201	A-4A
Q1202	A-4A
QF	
QF1301	A-5C
R	
R0001	A-5G
R0005	B-6G
R0006	B-5G
R0007	A-5G
R0008	A-5G
R0009	A-5G
R0010	A-5G
R0011	A-5G
R0012	A-5G
R0013	B-5G
R0014	B-5G
R0015	B-5G
R0016	A-5G
R0017	A-5G
R0018	B-5G
R0019	B-6F
R0020	B-5F
R0021	B-6F
R0022	B-5G
R0023	B-5G
R0024	B-5G
R0025	B-5G
R0026	B-5G
R0027	B-5F
R0028	B-5F
R0029	A-5F
R0030	A-4F
R0031	A-4F
R0032	A-5F
R0033	A-4G
R0034	A-4F
R0035	A-4F
R0036	A-4G
R0037	A-5G
R0038	A-4G
R0039	A-5F
R0040	A-5F
R0043	A-5H
R0101	A-5C
R0102	A-5C
R0103	A-4C
R0104	A-4C
R0105	A-4D
R0106	A-4D
R0107	A-4D
R0108	A-4D
R0109	A-4D
R0110	A-4D
R0111	A-4D
R0112	A-4D
R0113	B-4C
R0114	B-4C
R0115	B-1C
R0116	B-1D
R0117	B-4E
R0119	B-4C
R0120	B-4D
R0121	B-5D
R0122	B-5D
R0123	B-5D
R0124	B-5D
R0125	B-5D
R0127	B-4D
R0128	B-4D
R0129	B-4D
R0130	B-4D
R0132	A-3D
R0133	A-3D
R0134	A-3D
R0138	A-1D
R0141	B-2D
R0142	B-2D
R0143	A-1D
R0144	A-1D
R0146	A-1E
R0147	A-1D
R0148	A-1E
R0149	A-1E
R0150	A-2D
R0152	B-2C
R0154	A-3D
R0156	B-1C
R0157	A-3D
R0158	A-3D
R0159	A-3C
R0160	A-3C
R0161	A-4C
R0164	A-2D
R0165	B-4E
R0167	A-4C
R0168	A-3G
R0170	A-3G
R0171	A-3G
R0172	A-3G
R0173	A-3G
R0174	A-3G
R0175	A-2G
R0176	B-4F
R0180	A-4G
R0181	A-4G
R0182	B-4G
R0183	A-4G
R0184	B-4F
R0185	B-4F
R0186	B-4F
R0187	B-4F
R0188	B-4F
R0190	B-4G
R0191	A-4F
R0192	A-4F
R0193	A-4F
R0194	A-4F
R0196	A-3F
R0198	B-4G
R0199	B-4G
R0201	B-2E
R0205	A-2E
R0208	A-3F
R0213	B-2E
R0215	A-2D
R0216	A-3E
R0218	B-2E
R0219	A-2D
R0222	B-2E
R0223	A-2D
R0224	A-2D
R0225	B-1E
R0227	B-2E
R0228	B-2E
R0229	B-1E
R0234	A-1E
R0236	A-1E
R0239	A-2F
R0240	A-3F
R0241	A-2F
R0244	B-2F
R0246	B-2F
R0250	A-2G
R0253	B-1E
R0254	B-4F
R0261	B-2G
R0267	B-2G
R0268	B-2G
R0273	B-2G
R0295	B-2F
R0296	B-2F
R0298	B-2F
R0355	A-4I
R0356	A-4I
R0357	A-4I
R0358	A-4H
R0359	A-4H
R0362	A-4I
R0364	A-3H
R0366	A-3H
R0367	A-4H
R0371	A-3H
R0373	A-3H
R0374	A-4H
R0390	B-6J
R0391	B-6J
R0392	B-6J
R0397	B-3J
R0401L	A-5F
R0402L	B-6E
R0403L	B-6F
R0404L	B-5F
R0405	B-4E
R0410	A-4F
R0413L	B-5F
R0415	A-5F
R0417L	A-6E

IDENTIFICATION OF PARTS LOCATION

MAIN [VCA] 2/2

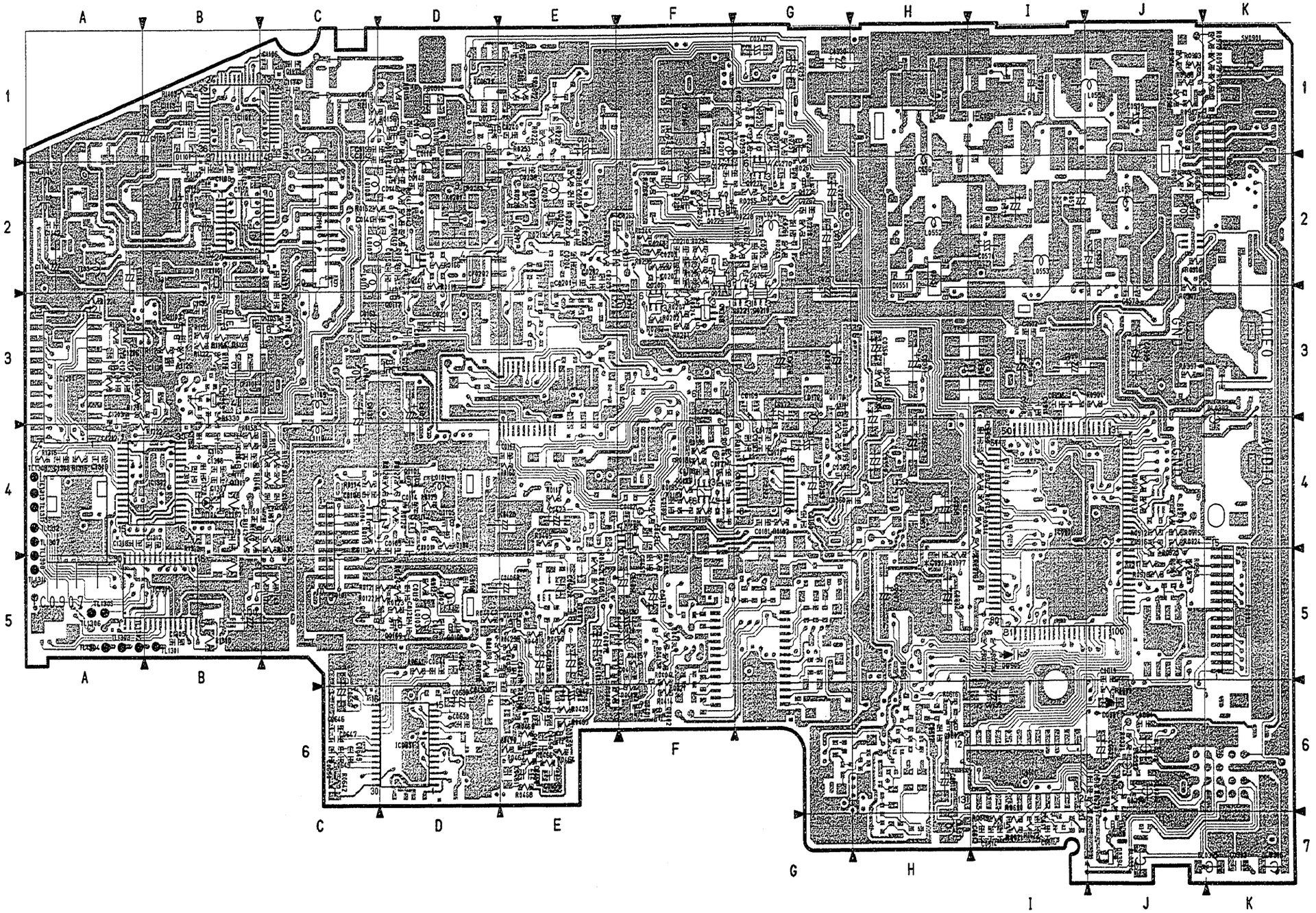
Symbol No.	Parts Location
R0418L	A-5E
R0419L	A-6E
R0428	B-6E
R0429L	A-5E
R0435	B-5F
R0436L	A-4F
R0445	A-4F
R0447	A-4E
R0460	B-5E
R0461L	B-5E
R0462L	B-5E
R0463L	B-5F
R0464	B-6E
R0465	B-6E
R0466	B-6E
R0467	B-6E
R0468	B-6E
R0469	B-6E
R0470	B-6E
R0551	A-1I
R0552	A-1I
R0553	A-1I
R0558	A-2J
R0560	A-1J
R0563	A-2I
R0564	A-2I
R0565	A-2I
R0570	A-2I
R0571	A-2I
R0575	A-1J
R0577	A-1J
R0578	A-1J
R0583	A-1J
R0584	A-1J
R0586	A-1I
R0588	A-1I
R0591	A-2H
R0592	A-2H
R0593	A-2I
R0594	A-2H
R0601	A-6J
R0602	A-6J
R0603	A-6J
R0606	A-5J
R0609	B-6J
R0610	A-5J
R0611	A-5J
R0612	A-5J
R0613	A-5J
R0614	A-5I
R0616	B-6H
R0619	B-7I
R0620	B-7I
R0621	B-7I
R0622	B-7I
R0624	B-6J
R0631	A-6D
R0632	A-6D
R0635	A-6D
R0641	B-5D
R0642	B-6C
R0661	B-2J
R0662	B-2J
R0663	A-5I
R0671	B-1E
R0672	B-1E
R0681	B-5H
R0682	A-6H
R0688	A-3I
R0689	A-3I
R0691	A-3J
R0692	A-3J
R0693	A-3J
R0694	A-3J
R0695	A-3J
R0696	A-3J
R0697	A-3J
R0698	A-3J
R0699	A-3J
R0714	A-5J
R0715	A-4I
R0718	A-4H
R0720	A-5H
R0728	A-3J
R0729	B-5I
R0730	B-5I
R0731	A-4J
R0737	B-4J
R0901	A-3I
R0902	A-3I
R0903	A-3I
R0904	B-3J
R0905	A-3I
R0906	B-2J
R0907	B-3J
R0908	A-3J
R0909	A-3J
R0910	A-3J
R0911	A-3J
R0912	B-4J
R0913	A-4J
R0914	A-4J
R0915	B-4J
R0916	B-4J
R0917	B-5J
R0918	B-5J
R0919	A-4J
R0920	A-5J
R0921	A-4J
R0922	A-4J
R0923	B-5J
R0924	B-4J
R0925	A-4J
R0926	A-4J
R0929	A-4H
R0930	A-3J
R0931	A-4I
R0932	A-4J
R0933	A-4J
R0935	A-4I
R0937	A-4I
R0938	A-4I
R0939	A-4I
R0940	A-4I
R0942	B-4I
R0943	B-4I
R0944	B-4I
R0945	A-5I
R0946	A-5I
R0949	A-5I
R0951	A-5I
R0952	A-4I
R0957	A-5K
R0959	A-5J
R0962	A-6K
R0963	A-6K
R0964	A-5K
R0965	A-5K
R0966	A-5K
R0967	A-5K
R0968	B-5J
R0969	B-5J
R0970	A-4J
R0971	A-5K
R0972	A-5K
R0973	B-4J
R0974	A-5K
R0975	A-6K
R0977	B-5H
R0978	B-1K
R0979	B-1K
R0980	B-1K
R0981	B-1J
R0982	B-1J
R0983	B-1J
R0984	B-1J
R0985	B-1J
R0986	A-1K
R0987	A-1K
R0988	A-1K
R0989	A-1K
R0990	A-5I
R0991	B-4J
R0994	A-1J
R1102	A-1B
R1103	B-1B
R1104	A-1B
R1105	A-2A
R1106	A-2A
R1107	A-1B
R1108	A-1A
R1109	A-1B
R1110	A-1B
R1113	A-2C
R1114	A-3B
R1116	A-3B
R1117	A-3C
R1118	A-3B
R1119	A-3B
R1120	B-3B
R1121	B-3B
R1122	B-3B
R1123	B-3B
R1124	B-3C
R1125	B-3B
R1126	B-3B
R1130	A-2C
R1131	A-2C
R1132	A-1C
R1133	A-1C
R1134	A-1C
R1135	A-1C
R1139	B-4C
R1140	B-4B
R1141	B-4C
R1142	B-4B
R1143	B-5C
R1144	B-4B
R1145	B-4B
R1146	A-3B
R1147	A-3B
R1148	B-4C
R1149	B-4C
R1150	B-4C
R1151	B-4C
R1152	A-3B
R1153	A-3C
R1158	B-4B
R1159	B-4B
R1162	B-4B
R1164	B-3B
R1171	B-5C
R1172	A-2C
R1201	A-4A
R1202	B-3A
R1203	B-3A
R1204	B-3A
R1205	A-4A
R1206	B-3A
R1207	A-4A
R1208	A-4A
R1209	A-4A
R1210	A-4A
R1211	A-3A
R1212	A-3A
R1213	A-4A
R1214	A-3A
R1215	A-3A
R1216	A-3A
R1217	A-3A
R1218	A-3A
R1220	A-3A
R1221	A-4A
R1222	B-4A
R1224	B-3A
R1301	A-4B
R1302	A-4B
R1303	A-4C
R1304	A-4C
R1306	B-5B
R1308	A-5A
R1309	A-5A
R1310	B-5B
R1313	B-4B
R1315	B-4A
R1316	B-4A
R1317	A-4A
R1322	A-5A
R1323	A-5A
R1330	B-3B
R1331	A-3A
R1332	A-3A
R1335	A-3A
R1336	A-3A
RT	
RT0001	A-5G
RT0002	A-5G
RT0003	A-5G
RT0004	A-5G
RT0005	A-4G
RT0103	A-2D
RT0203	A-3E
RT0204	A-2F
RT0205	A-2F
RT0206	A-3F
RT0207	A-3G
RT0209	A-2G
RT0210	A-3G
RT0211	A-4F
RT0212	A-4G
RT0215	A-2F
RT0216	A-3G
SW	
SW0901	B-1K
T	
T0551	B-1H
TL	
TL1139	A-2C
TL1301	B-5B
TL1302	B-5A
TL1303	B-5A
TL1304	B-5A
TL1305	B-5A
TL1306	B-5A
TL1307	B-4A
TL1308	B-5A
TL1309	B-4A
TL1311	B-4A
TL1312	B-4A
TL1313	B-4A
TL1314	B-5A
TL1318	A-5B
TP	
TP0001	A-5F
TP0002	A-5F
TP0003	A-5F
TP0101	A-2D
TP0102	A-3D
TP0103	A-1D
TP0201	A-2D
TP0202	A-2F
TP0203	A-2D
TP0204	A-1F
TP0205	A-2E
TP0206	A-3E
TP0302	A-3F
X	
X0201	B-2D
X0901	B-3I
X0902	A-5J
X1101	B-2B

DIFFERENCE TABLE
VCA[MAIN] – SIDE B –

NOTE: This table listes the different components marked with asterisks (*) in the circuit board diagrams.

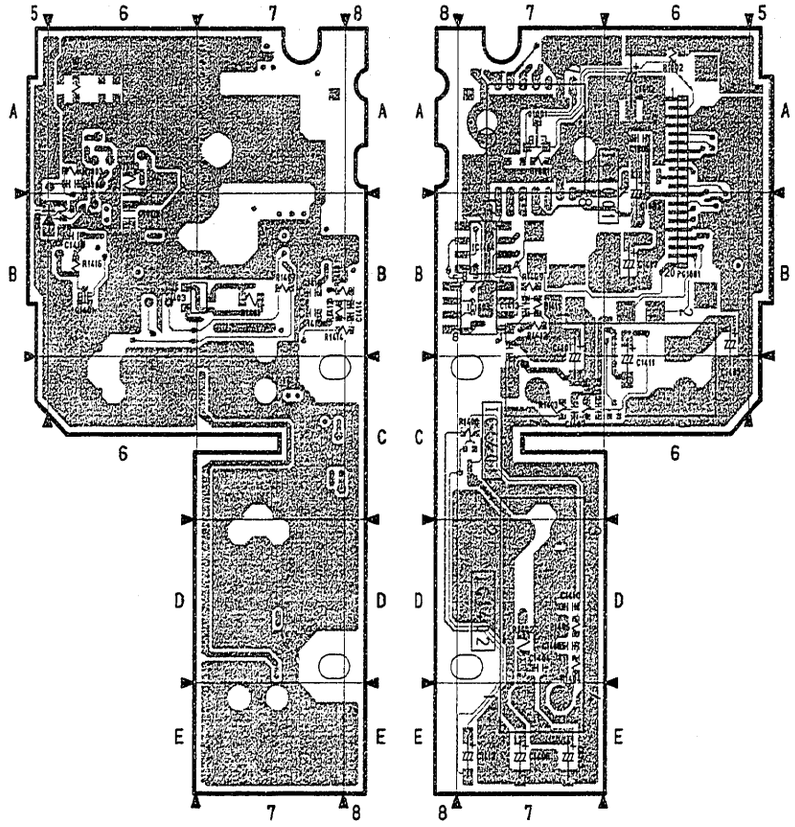
SYMBOL No.	TYPE820	TYPE720
C0921	○	×
R0976	○	×

VCA CIRCUIT BOARD -SIDE·B-
-TYPE 620. 720-



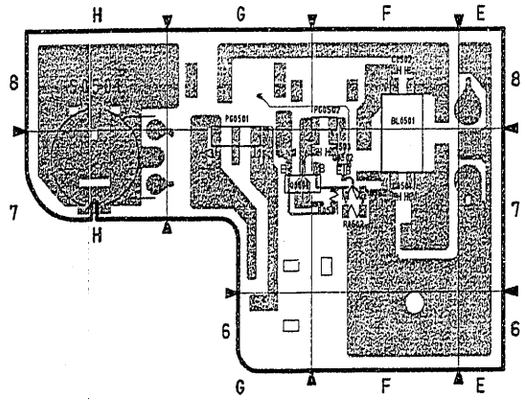
VCA(MAIN)-SIDE B-
[PATTERN No.JA1248-5]

SPE. DCS. CRE. HTS9551C CIRCUIT BOARDS -TYPE 620. 720-

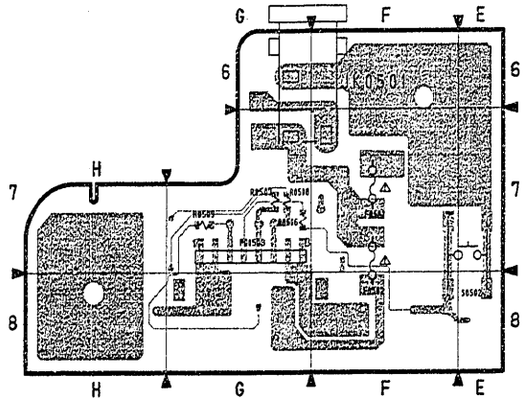


SPE(SENSOR/GYRO)
-SIDE A-
[PATTERN No.JA1248-5]

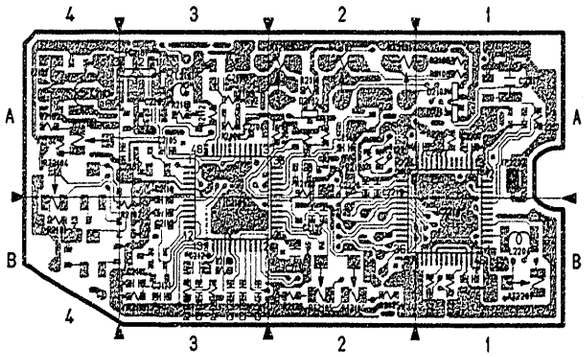
SPE(SENSOR/GYRO)
-SIDE B-



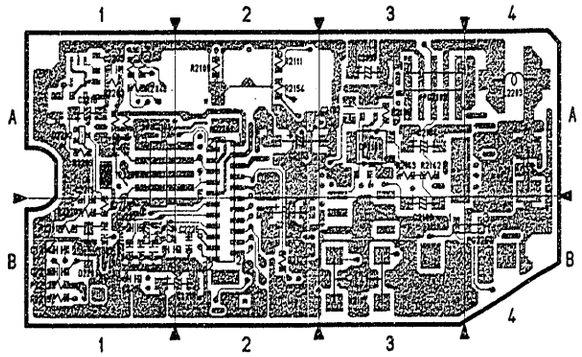
DCS(DC/SWITCH)-SIDE B-



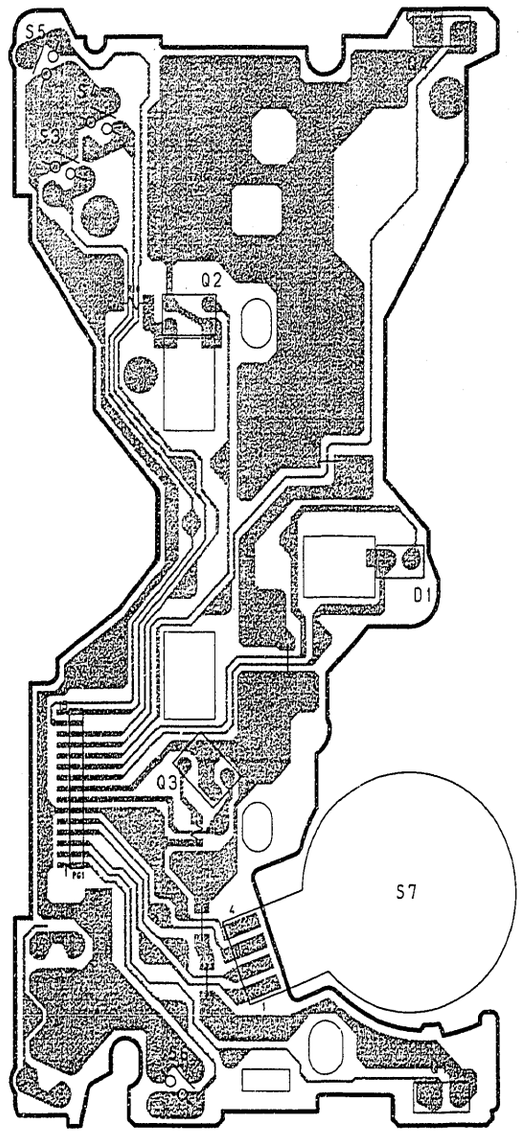
DCS(DC/SWITCH)-SIDE A-
[PATTERN No.JA1248-5]



CRE(COLOR EVF)-SIDE A-
[PATTERN No.JA1119-5]



CRE(COLOR EVF)-SIDE B-



TROUBLE SENSOR(HTS9551C)
[PATTERN No.155190-2]

IDENTIFICATION OF PARTS LOCATION

SPE [SENSOR/GYRO]

Symbol No.	Parts Location
C	
C1002	B-6A
C1003	A-6B
C1004	A-6A
C1005	B-6B
C1006	B-6A
C1401	B-7C
C1402	B-7E
C1403	B-7C
C1404	B-7D
C1405	B-6C
C1406	B-7E
C1407	B-7C
C1408	B-7D
C1409	B-7C
C1410	B-7D
C1411	B-6C
C1412	B-7E
C1413	B-7B
C1414	A-8B
C1415	A-7B
C1416	A-7B
C1417	B-6B
C1418	A-6B
D	
D1001	A-5B
D1403	A-6B
IC	
IC1001	B-7A
IC1401	B-7C
IC1402	B-7D
IC1403	B-7B
IC1404	B-7B
PG	
PG1001	B-6B
Q	
Q1001	B-7A
Q1401	A-6B
R	
R1001	B-7A
R1002	B-6A
R1003	A-6A
R1004	A-6B
R1006	A-6A
R1009	A-6A
R1401	A-7B
R1402	B-7D
R1403	B-7C
R1404	B-7D
R1405	B-7C
R1406	B-7D
R1407	A-7B
R1408	B-7C
R1409	B-7B
R1410	A-7B
R1411	B-7B
R1412	A-7B

Symbol No.	Parts Location
R1413	B-7B
R1414	A-7B
R1416	A-6B

CRE [COLOUR EVF]

Symbol No.	Parts Location
C	
C2102	B-3A
C2104	A-3A
C2105	A-3A
C2106	A-3A
C2108	B-3B
C2110	A-3B
C2113	A-3B
C2114	A-3B
C2119	A-3B
C2120	A-3B
C2121	A-3B
C2122	A-3B
C2123	A-3B
C2124	A-3B
C2136	A-2B
C2137	A-2B
C2138	A-2B
C2141	A-2A
C2181	A-3A
C2182	B-2B
C2183	B-2A
C2184	B-3A
C2185	A-3A
C2187	B-3A
C2203	B-1A
C2204	B-1B
C2205	A-1B
C2207	A-1A
C2211	B-4A
C2212	B-1B
C2213	B-1B
C2214	B-1B
C2215	B-1A
C2216	B-1A
C2217	A-1A
C2218	B-2B
C2219	A-2A
C2220	A-2A
C2221	B-1B
C2222	B-1B
C2223	B-1B
C2224	B-1B
C2225	B-2B
C2226	B-1B
C2227	A-1A
CP	
CP2101	B-3A
D	
D2101	A-1A
D2102	A-2A
D2103	A-1A
D2201	B-1B
D2202	B-1A
IC	
IC2101	A-3B
IC2181	A-3A

Symbol No.	Parts Location
IC2202	A-1B
L	
L2181	A-3A
L2182	A-4A
L2203	B-4A
L2204	A-1B
PG	
PG2102	B-3A
PG2104	B-1A
PG2201	B-2A
PG2203	B-4B
R	
R2101	A-4B
R2102	A-3B
R2103	A-2A
R2104	A-3A
R2105	A-3A
R2106	A-1A
R2107	B-1A
R2108	A-1A
R2109	B-2A
R2110	A-2A
R2111	B-2A
R2112	A-3A
R2113	A-3A
R2115	A-3B
R2118	A-3B
R2119	A-3B
R2120	A-2A
R2121	A-2A
R2122	B-2B
R2125	A-2B
R2126	A-2B
R2128	A-2A
R2129	A-2A
R2139	B-3A
R2140	A-3B
R2142	B-3A
R2143	B-3A
R2148	B-1A
R2151	A-2A
R2153	B-1A
R2154	B-2A
R2181	A-4A
R2182	A-4A
R2184	A-4A
R2202	B-1A
R2203	B-1A
R2204	B-1A
R2207	A-1A
R2208	B-1B
R2209	B-1A
R2210	B-1B
R2211	B-1B
R2212	B-1B
R2213	B-1B
R2215	A-1A

Symbol No.	Parts Location
R2216	A-1B
R2217	A-1B
RT	
RT2101	A-2A
RT2102	A-2A
RT2103	A-2A
RT2104	A-4A
RT2105	A-2B
RT2106	A-2B
RT2181	A-4A
RT2201	A-1B
TP	
TP2201	B-1A
TP2202	A-1A
X	
X2101	B-3B

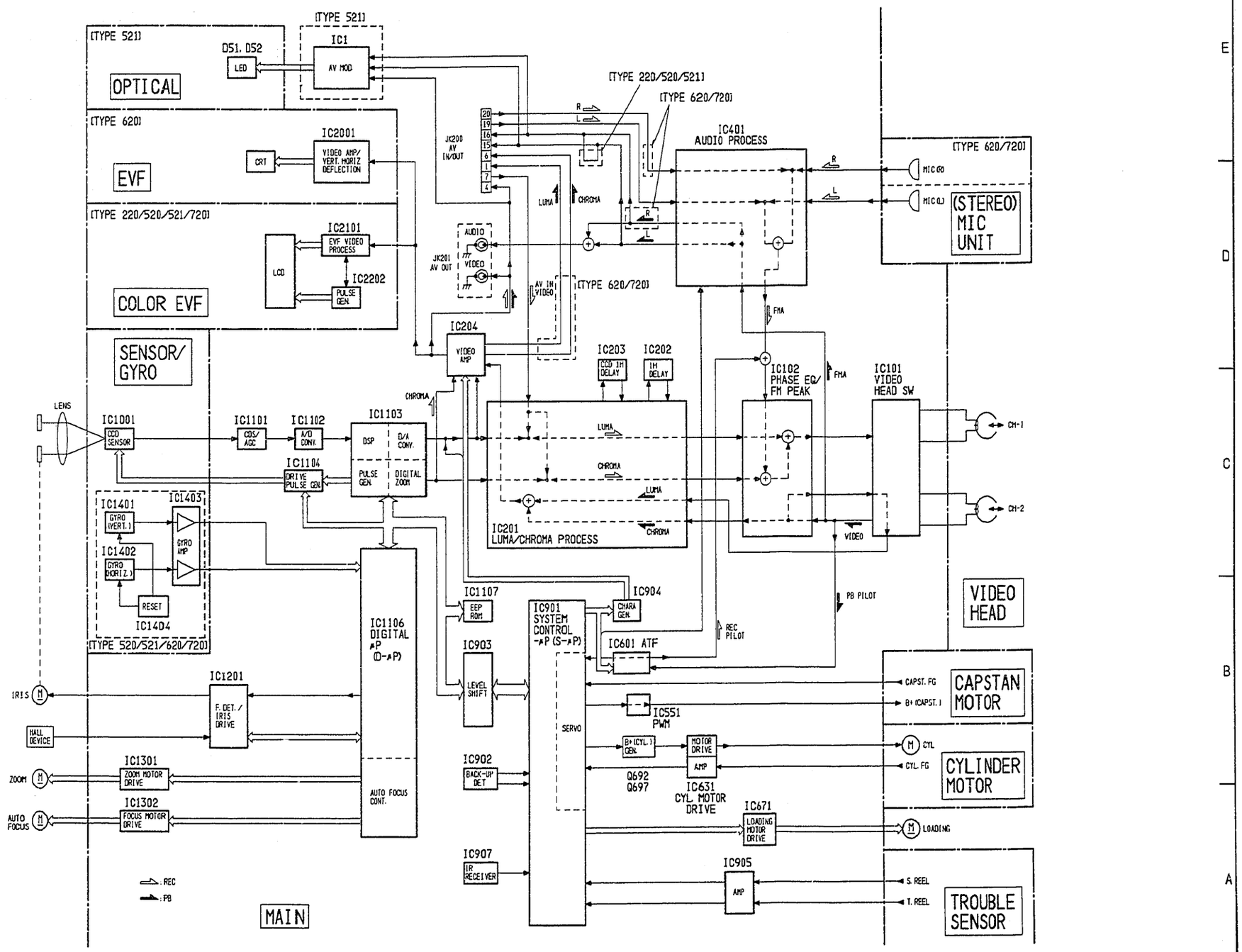
DCS [DC/SWITCH]

Symbol No.	Parts Location
BL	
BL501	B-8F
C	
C501	B-7F
C502	B-8F
C503	B-7F
F	
F501	A-7F
F502	A-7F
JK	
JK501	A-6F
PG	
PG501	B-7G
PG502	B-8F
PG503	A-7G
Q	
Q501	B-7G
Q502	B-7F
R	
R501	B-7F
R502	B-7F
R503	B-7F
R506	A-7G
R507	A-7G
R508	A-7G
R509	A-7G
S	
S501	B-7H
S502	A-8E

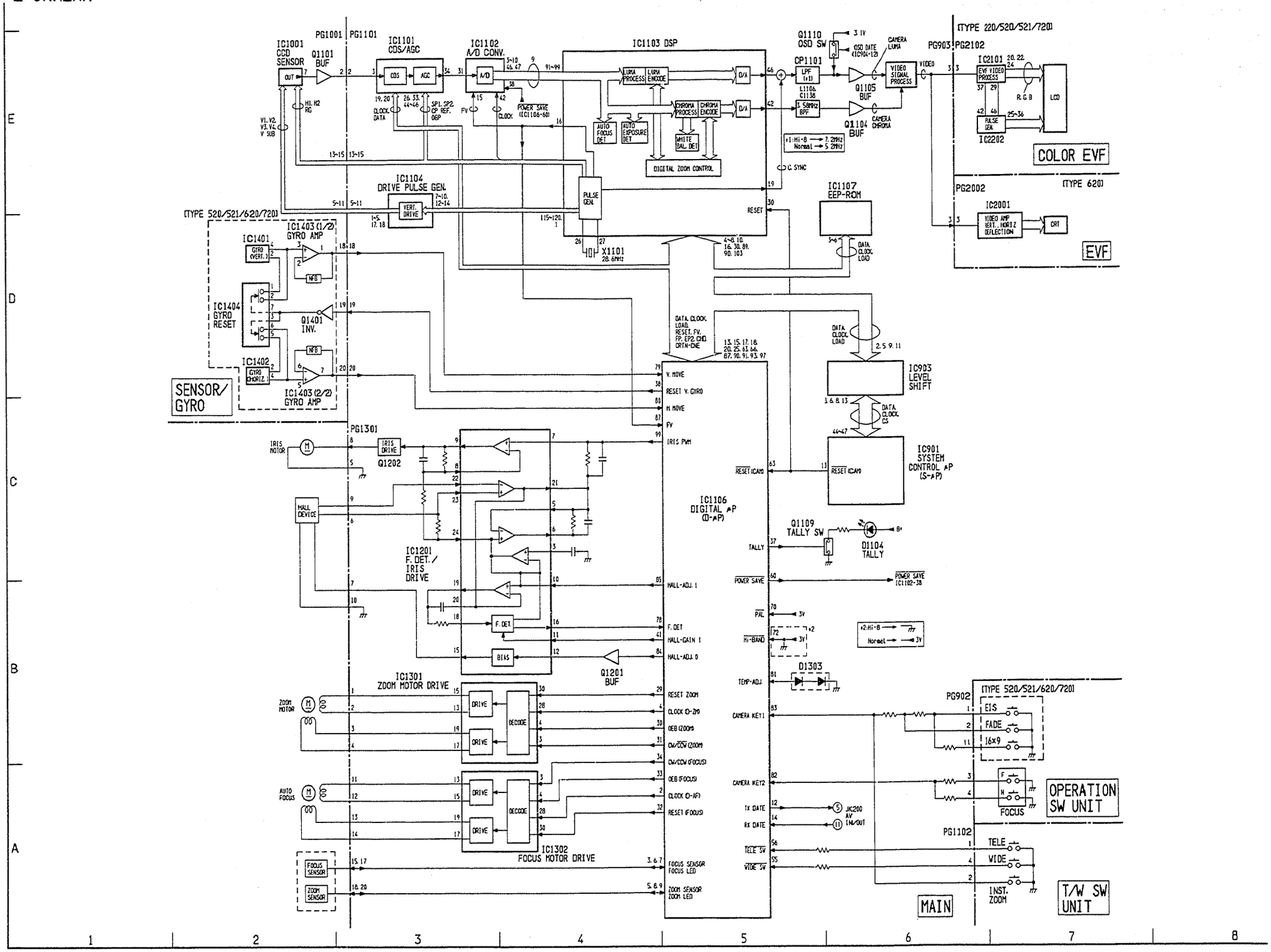
CHAPTER 7 MICROPROCESSOR PIN FUNCTION TABLE/ BLOCK DIAGRAMS

1. BLOCK DIAGRAMS

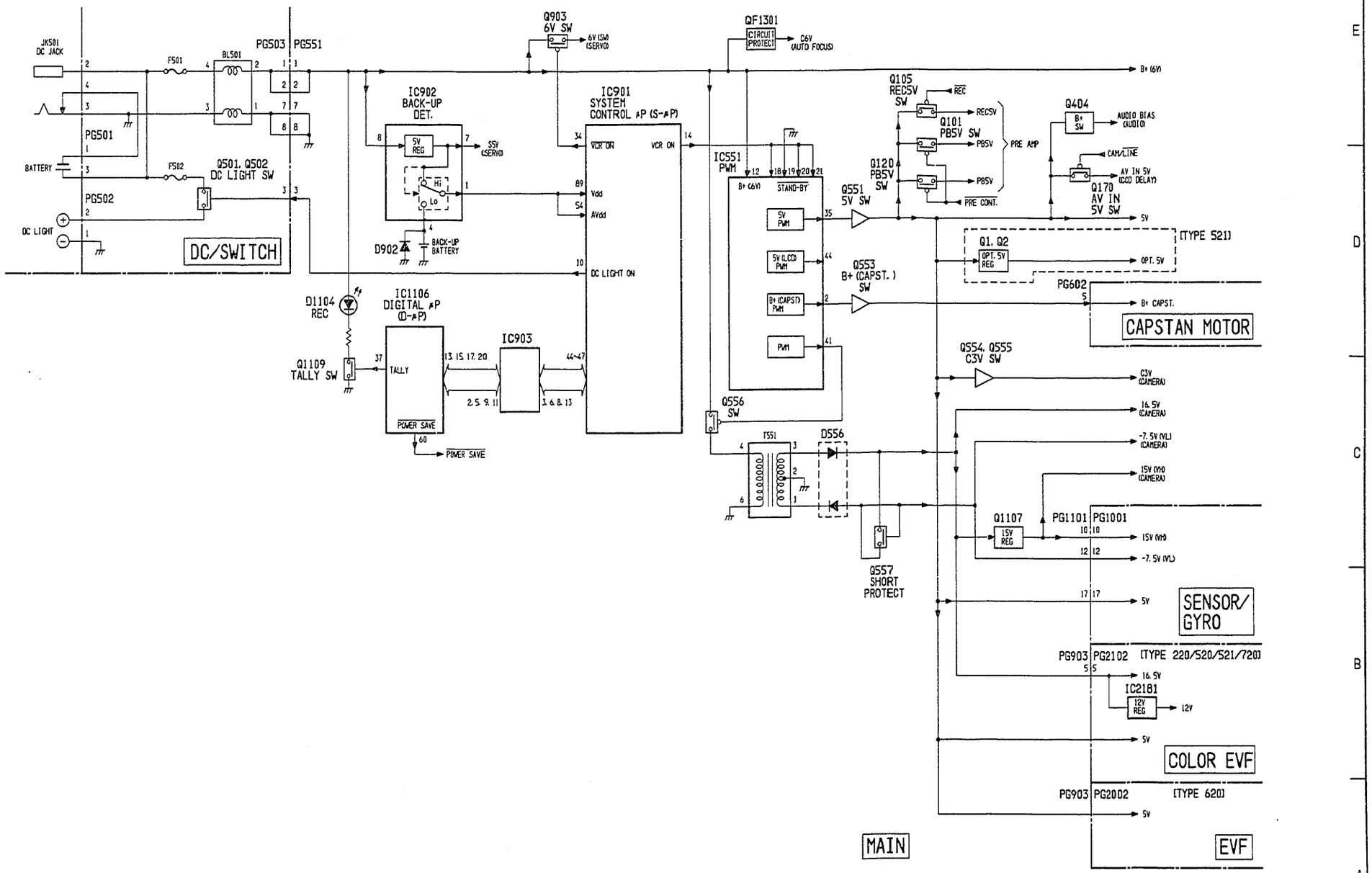
1. OVERALL



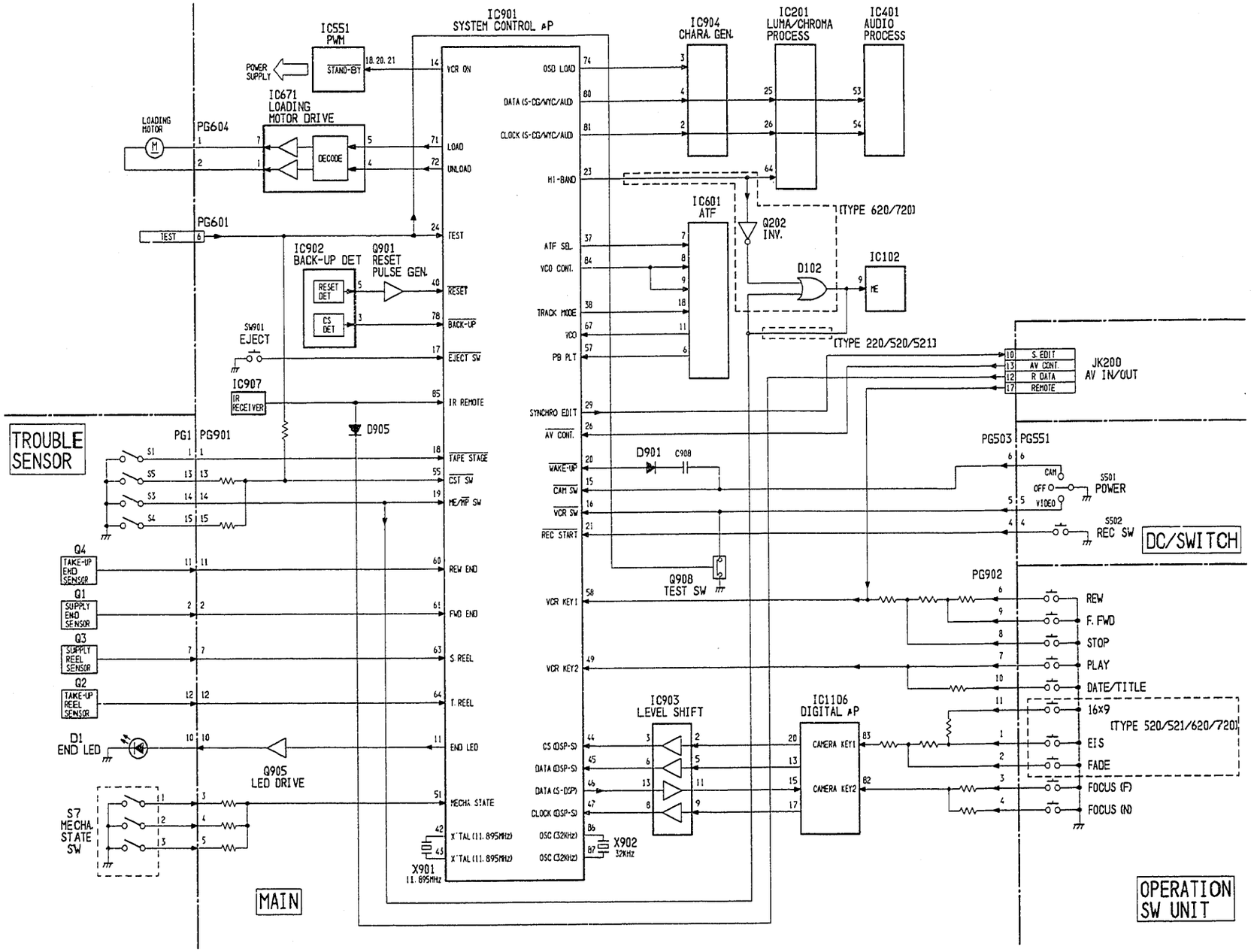
2. CAMERA

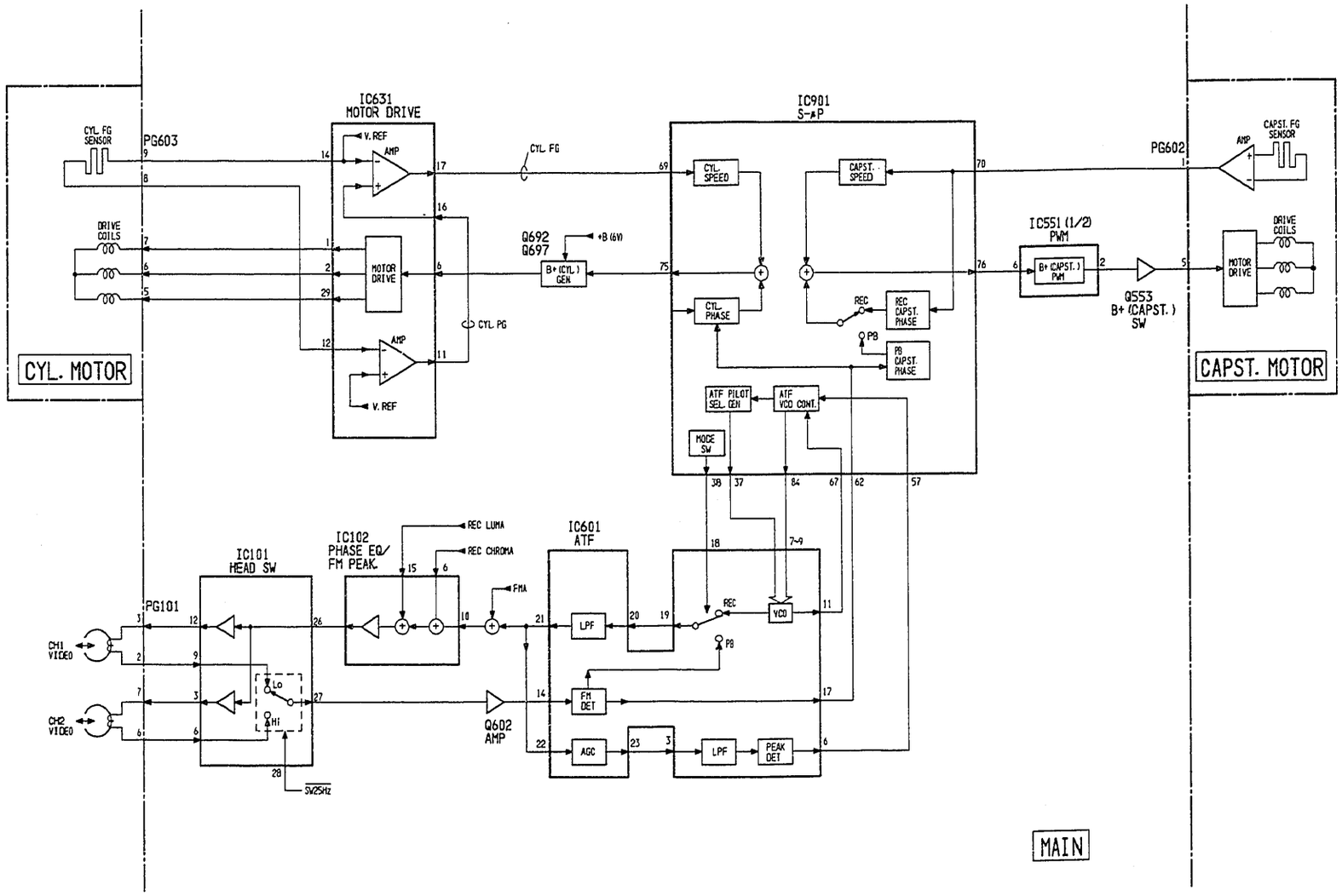

IC1001 CCD SENSOR
Q1101 BUF
PG1001
PG1101
IC1101 CDS/AGC
IC1102 A/D CONV.
IC1103 DSP
Q1110 OSD SW
CP1101
Q1105 BUF
Q1104 BUF
VIDEO SIGNAL PROCESS
PG903
PG2102
(TYPE 220/520/521/720)
IC2101
EVF VIDEO PROCESS
LCD
R.G.B
PULSE GEN.
IC2202
COLOR EVF
(TYPE 620)
PG2002
IC2001
VIDEO AMP VERT., HORIZ DEFLECTION
CRT
EVF
IC1104 DRIVE PULSE GEN.
VERT. DRIVE
PULSE GEN.
X1101 28.6MHz
IC1107 EEP-ROM
(TYPE 520/521/620/720)
IC1403 (1/2) GYRO AMP
IC1401
IC1404 GYRO RESET
Q1401 INV.
IC1402
IC1403 (2/2) GYRO AMP
SENSOR/ GYRO
PG1301
IRIS MOTOR
IRIS DRIVE
Q1202
HALL DEVICE
IC1201 F. DET./ IRIS DRIVE
F. DET
BIAS
Q1201 BUF
IC1301 ZOOM MOTOR DRIVE
ZOOM MOTOR
AUTO FOCUS
DRIVE
DECODE
IC1302 FOCUS MOTOR DRIVE
FOCUS SENSOR
ZOOM SENSOR
IC1106 DIGITAL AMP (D-AMP)
IC903 LEVEL SHIFT
IC901 SYSTEM CONTROL AMP (S-AMP)
Q1109 TALLY SW
D1104 TALLY
D1303
PG902
EIS
FADE
16x9
FOCUS
OPERATION SW UNIT
PG1102
TELE
WIDE
INST. ZOOM
T/W SW UNIT
MAIN
V. MOVE
RESET V. GYRO
H. MOVE
FV
IRIS PWM
HALL-ADJ. 1
F. DET
HALL-GAIN 1
HALL-ADJ. 0
RESET ZOOM
CLOCK (D-ZM)
OEB (ZOOM)
CW/CCW (ZOOM)
CW/CCW (FOCUS)
OEB (FOCUS)
CLOCK (D-AF)
RESET (FOCUS)
FOCUS SENSOR
FOCUS LED
ZOOM SENSOR
ZOOM LED
DATA, CLOCK, LOAD, RESET, FV, FP, EP2, CHG, CRTN-CHG
DATA, CLOCK, LOAD
DATA, CLOCK, CS
RESET (CAM)
TALLY
POWER SAVE
PAL
Hi-BAND
TEMP-ADJ.
CAMERA KEY1
CAMERA KEY2
TX DATE
RX DATE
TELE SW
WIDE SW
JK200 AV IN/OUT
CAMERA LUMA
CAMERA CHROMA
C. SYNC
RESET
Y: Hi-8 → 7.2MHz Normal → 5.2MHz
C: Hi-8 → 5.9MHz BPF
+2: Hi-8 → Normal → 3V
3.1V
OSD DATE (IC904-12)
L1106, C1138
AUTO FOCUS DET
AUTO EXPOSURE DET
WHITE BAL. DET
DIGITAL ZOOM CONTROL
CHROMA PROCESS
CHROMA ENCODE
LUMA PROCESS
LUMA ENCODE
CDS
AGC
A/D
D/A
LPF (x1)

3. POWER

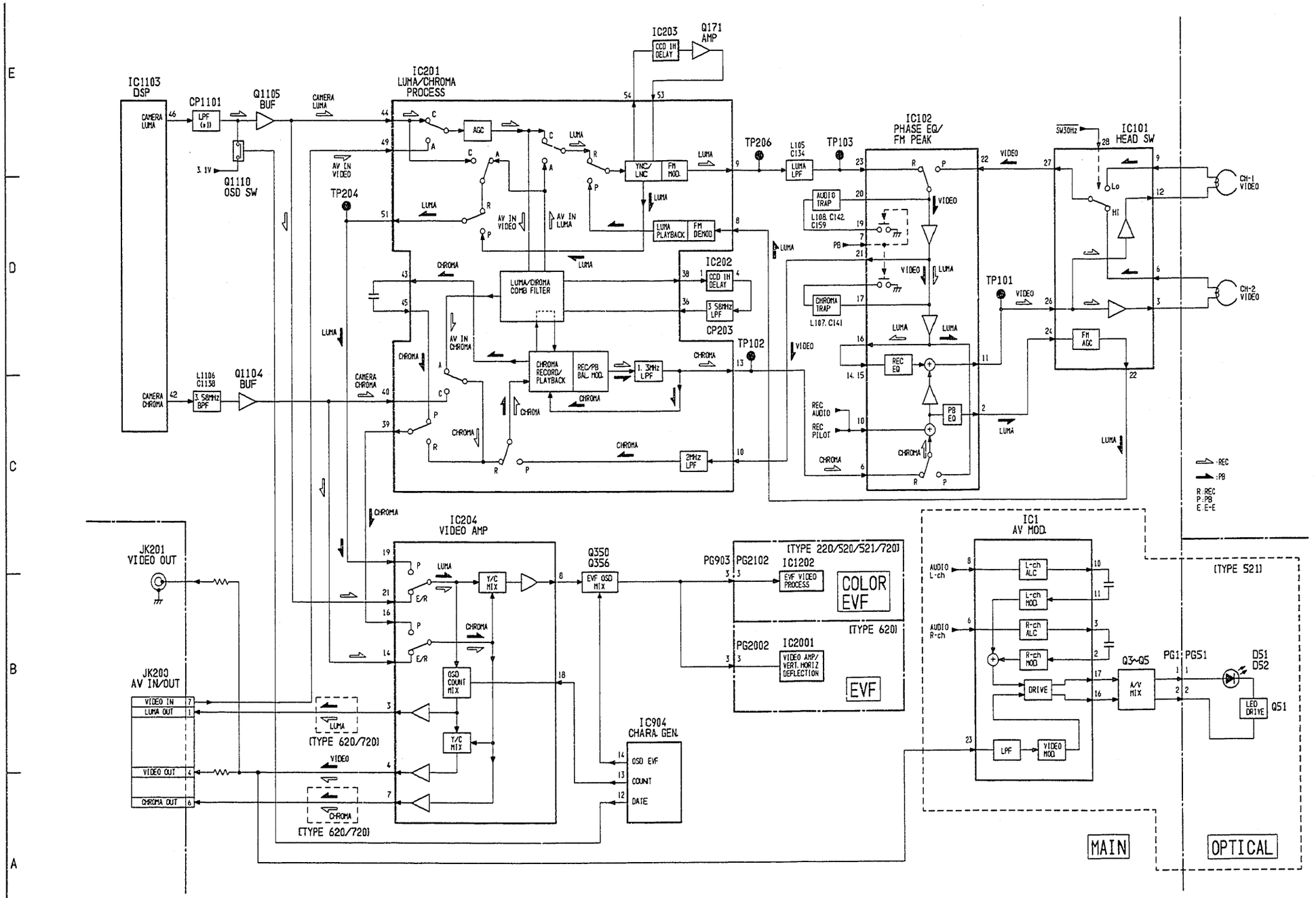

JK501
DC JACK
F501
BL501
PG503
PG551
PG501
BATTERY
F502
Q501, Q502
DC LIGHT SW
PG502
DC LIGHT
DC/SWITCH
Q903
6V SW
6V (SW)
(SERVO)
QF1301
CIRCUIT PROTECT
C6V
(AUTO FOCUS)
B+ (6V)
IC902
BACK-UP
DET.
5V REG
5SV
(SERVO)
Hi
Lo
D902
BACK-UP BATTERY
IC901
SYSTEM
CONTROL μP (S-μP)
VCR OR
VCR ON
Vdd
AVdd
DC LIGHT ON
Q105
REC5V
SW
REC
RECSV
Q101
PB5V SW
PB5V
PB5V
PRE CONT.
PRE AMP
Q404
B+ SW
AUDIO BIAS
(AUDIO)
CAM/LINE
AV IN 5V
(CCD DELAY)
Q170
AV IN
5V SW
5V
IC551
PWM
B+ (6V)
STAND-BY
5V PWM
5V (LCD) PWM
B+ (CAPST) PWM
PWM
Q551
5V SW
Q120
PB5V
SW
Q553
B+ (CAPST.)
SW
Q1, Q2
OPT. 5V REG
OPT. 5V
(TYPE 521)
PG602
B+ CAPST.
CAPSTAN MOTOR
Q554, Q555
C3V SW
C3V
(CAMERA)
16.5V
(CAMERA)
-7.5V (VL)
(CAMERA)
15V (VH)
(CAMERA)
D1104
REC
Q1109
TALLY SW
IC1106
DIGITAL μP
(D-μP)
TALLY
POWER SAVE
IC903
13.15.17.20
2.5.9.11
44~47
1.6.8.13
Q556
SW
T551
D556
Q557
SHORT
PROTECT
Q1107
15V REG
PG1101
PG1001
15V (VH)
-7.5V (VL)
5V
SENSOR/
GYRO
PG903
PG2102
(TYPE 220/520/521/720)
16.5V
IC2181
12V REG
12V
5V
COLOR EVF
PG903
PG2002
(TYPE 620)
5V
MAIN
EVF

4. SYSTEM CONTROL

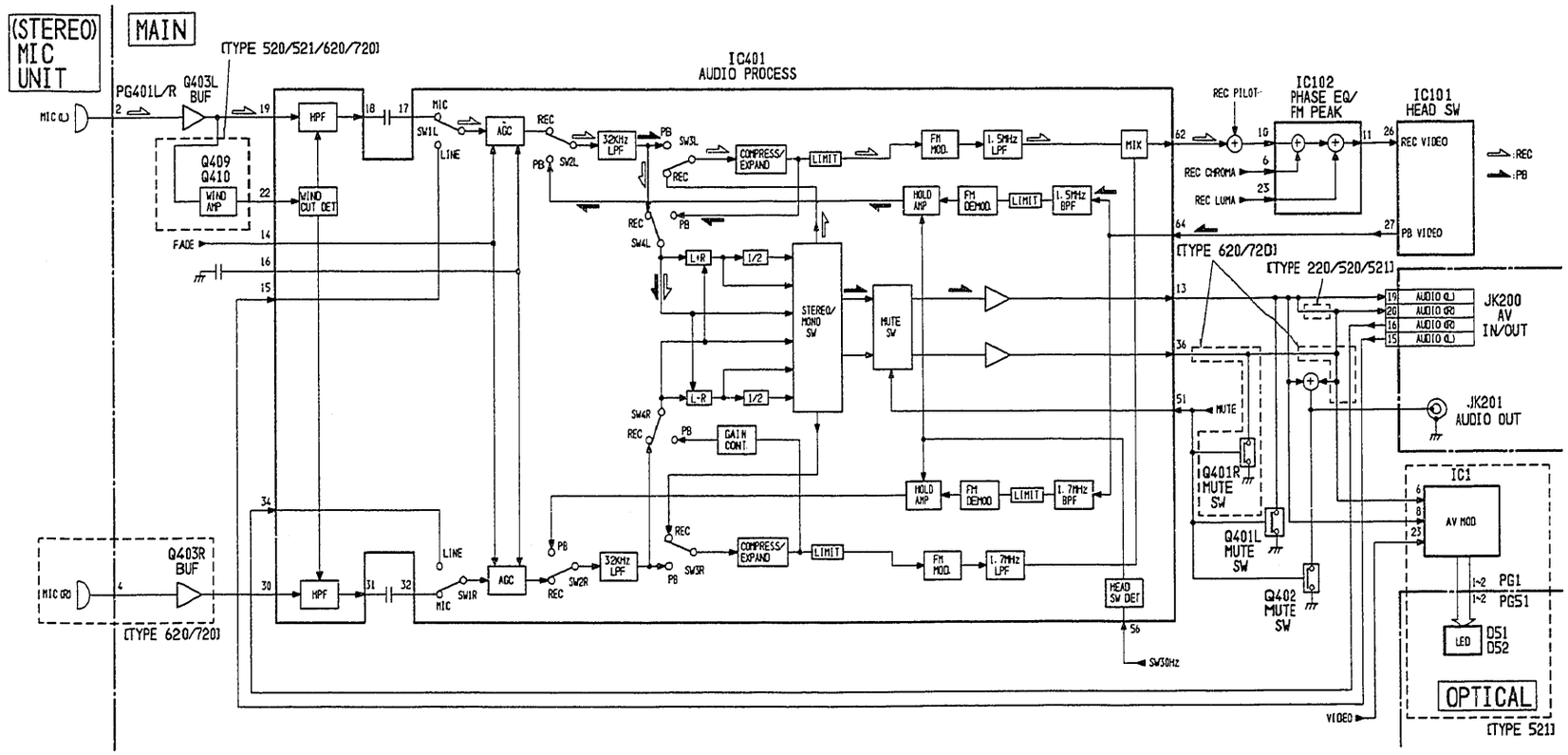



IC631
MOTOR DRIVE
IC901
S-AP
PG603
PG602
CYL. FG SENSOR
CAPST. FG SENSOR
V. REF
AMP
CYL. FG
DRIVE COILS
MOTOR DRIVE
Q692
Q697
+B (6V)
B+ (CYL.) GEN
CYL. PG
CYL. SPEED
CAPST. SPEED
CYL. PHASE
REC
REC CAPST. PHASE
PB
PB CAPST. PHASE
ATF PILOT SEL. GEN
ATF VCO CONT.
MODE SW
IC551 (1/2)
PWM
B+ (CAPST.) PWM
Q553
B+ (CAPST.) SW
CYL. MOTOR
CAPST. MOTOR
IC101
HEAD SW
IC102
PHASE EQ/
FM PEAK.
IC601
ATF
REC LUMA
REC CHROMA
FMA
PG101
CH1 VIDEO
CH2 VIDEO
Lo
Hi
SW25Hz
Q602
AMP
LPF
VCO
FM DET
AGC
PEAK DET
MAIN

6. VIDEO


IC1103
DSP
CP1101
Q1105
BUF
CAMERA LUMA
IC201
LUMA/CHROMA
PROCESS
IC203
CCD 1H DELAY
Q171
AMP
TP206
L105
C134
LUMA LPF
TP103
IC102
PHASE EQ/
FM PEAK
IC101
HEAD SW
SW30Hz
CH-1 VIDEO
CH-2 VIDEO
Q1110
OSD SW
3.1V
TP204
AV IN VIDEO
AV IN LUMA
AGC
YNC/LNC
FM MOD.
LUMA PLAYBACK
FM DEMOD
AUDIO TRAP
L108, C142
C159
CHROMA TRAP
L107, C141
IC202
CCD 1H DELAY
3.58MHz LPF
CP203
LUMA/CHROMA COMB FILTER
TP101
TP102
CHROMA RECORD/PLAYBACK
REC/PB BAL. MOD.
1.3MHz LPF
2MHz LPF
REC EQ
PB EQ
REC AUDIO
REC PILOT
FM AGC
L1106
C1138
3.58MHz BPF
Q1104
BUF
CAMERA CHROMA
AV IN CHROMA
IC204
VIDEO AMP
JK201
VIDEO OUT
JK203
AV IN/OUT
VIDEO IN
LUMA OUT
VIDEO OUT
CHROMA OUT
(TYPE 620/720)
Q350
Q356
EVF OSD MIX
Y/C MIX
OSD COUNT MIX
IC904
CHARA. GEN.
OSD EVF
COUNT
DATE
PG903
PG2102
IC1202
EVF VIDEO PROCESS
COLOR EVF
(TYPE 620)
PG2002
IC2001
VIDEO AMP/ VERT. HORIZ DEFLECTION
EVF
(TYPE 220/520/521/720)
IC1
AV MOD.
AUDIO L-ch
AUDIO R-ch
L-ch ALC
L-ch MOD
R-ch ALC
R-ch MOD
DRIVE
LPF
VIDEO MOD
A/V MIX
Q3~Q5
PG1, PG51
D51
D52
LED DRIVE
Q51
(TYPE 521)
MAIN
OPTICAL
:REC
:PB
R:REC
P:PB
E:E-E

7. AUDIO


(STEREO) MIC UNIT
MAIN
(TYPE 520/521/620/720)
IC401 AUDIO PROCESS
PG401L/R
Q403L BUF
MIC (L)
Q409 Q410 WIND AMP
HPF
WIND CUT DET
FADE
ACC
REC
PB
SW1L
SW2L
SW3L
SW4L
32KHz LPF
COMPRESS/ EXPAND
LIMIT
FM MOD.
1.5MHz LPF
HOLD AMP
FM DEMOD.
1.5MHz BPF
MIX
L+R
1/2
L-R
STEREO/ MONO SW
MUTE SW
GAIN CONT.
SW4R
SW3R
SW2R
SW1R
AGC
1.7MHz LPF
1.7MHz BPF
HEAD SW DET
SW30Hz
MUTE
REC PILOT
IC102 PHASE EQ/ FM PEAK
REC CHROMA
REC LUMA
IC101 HEAD SW
REC VIDEO
PB VIDEO
:REC
:PB
(TYPE 620/720)
(TYPE 220/520/521)
JK200 AV IN/OUT
AUDIO (L)
AUDIO (R)
JK201 AUDIO OUT
Q401R MUTE SW
Q401L MUTE SW
Q402 MUTE SW
IC1
AV MOD
PG1
PG51
LED
D51
D52
OPTICAL
(TYPE 521)
Q403R BUF
MIC (R)
(TYPE 620/720)
VIDEO

2. MICROPROCESSOR PIN FUNCTION TABLES

2-1. Digital Microprocessor (IC1106: D-μP)

Pin No.	I/O	Active Level	Abbreviation	Function
1	—	——	Vcc	3V power input.
2	O	(Pulse)	CLOCK(D-AF)	Outputs reference clock pulses to IC1302 (FOCUS MOTOR DRIVE).
3	I	(Pulse)	FOCUS SENSOR	Focus motor position detection input.
4	O	(Pulse)	CLOCK(D-ZM)	Outputs reference clock pulses to IC1301 (ZOOM MOTOR DRIVE).
5	I	(Pulse)	ZOOM SENSOR	Zoom motor position detection input.
6	O	(Pulse)	FOCUS LED1	Output pulses to drive the LEDs in the focus reset switches
7	O	(Pulse)	FOCUS LED2	(FOCUS RESET SW).
8	O	(Pulse)	ZOOM LED1	Output pulses to drive the LEDs in the zoom reset switches
9	O	(Pulse)	ZOOM LED2	(ZOOM RESET SW).
10	—	——	RESET[Lo]	Not used. Open.
11	—	——	Vss	Ground.
12	O	(Pulse)	TX DATA	Used for initial settings and adjustment. For data communications
14	I	(Pulse)	RX DATA	with personal computer.
13	O	(Pulse)	DATA(D-DSP/ ROM/S)	For data communications with IC1103 (DSP), IC1107 (EEP-ROM) and IC901 (S-μP).
15	I	(Pulse)	DATA(DSP/ROM/ S-D)	
17	O	(Pulse)	CLOCK(D-DSP/ ROM/S)	
16	—	——	——	Not used. Open.
18	O	(Pulse)	LOAD(D-DSP)	Activates data communications with IC1103 (DSP).
19	—	——	——	Not used. Open.
20	O	(Pulse)	LOAD(D-S)	Activates data communications with IC901 (S-μP).
21	—	——	——	Not used. Open.
22	—	——	Vss	Ground.
23	O	Lo	LOAD[Lo](D-ROM)	Activates data communications with IC1107 (EEP-ROM).
24	—	——	——	Not used. Open.
25	—	——	——	
26	—	——	——	
27	O	(Pulse)	CLOCK(D-CDS)	Transfer data to IC1101 (CDS/AGC).
28	O	(Pulse)	DATA(D-CDS)	
29	O	Hi	RESET(ZOOM)	Resets IC1301 (ZOOM MOTOR DRIVE).
30	O	(Pulse)	OEB(ZOOM)	Activates data communications with IC1301 (ZOOM MOTOR DRIVE).
31	O	Hi/Lo	CW/CCW[Lo] (ZOOM)	Issues a command which determines the direction of motor drive to IC1301 (ZOOM MOTOR DRIVE).
32	O	Hi	RESET(FOCUS)	Resets IC1302 (FOCUS MOTOR DRIVE).
33	O	(Pulse)	OEB(FOCUS)	Activates data communications with IC1302 (FOCUS MOTOR DRIVE).
34	O	Hi/Lo	CW/CCW[Lo] (FOCUS)	Issues a command which determines the direction of motor drive to IC1302 (FOCUS MOTOR DRIVE).
35	—	——	Vcc	3V power input.
36	—	——	——	Not used. Open.
37	O	Hi	TALLY	Drives Q1109 (TALLY SW) to turn on the record LED during recording.
38	O	Hi	RESET(V.GYRO)	Drives IC1404 (GYRO RESET) via Q1401 (INV.) to reset IC1401 (V. GYRO) and IC1402 (H. GYRO).
39	O	Hi	RESET(H.GYRO)	Not used. Open.
40	O	Hi	HALL GAIN 0	Not used. Open.
41	O	Hi	HALL GAIN 1	Control the amplification (gain of Hall device) of IC1201 (F.DET/ IRIS DRIVE).
42	—	——	——	Not used. Open.
43	—	——	——	
44	—	——	Vss	Ground.
45	—	——	——	Not used. Open.
46	—	——	——	
47	—	——	——	
48	—	——	——	
49	—	——	——	
50	—	——	——	
51	—	——	——	
52	—	——	——	
53	—	——	——	
54	I	——	T/W FAST	Not used. Open.
55	I	Lo	WIDE SW[Lo]	Zoom switch detection inputs.
56	I	Lo	TELE SW[Lo]	
57	—	——	Vss	Ground.
58	—	——	——	Not used. Open.
59	-	——	——	
60	O	Lo	POWER SAVE[Lo]	Outputs "Lo" in modes other than camera recording to inhibit the operation of each circuit, thus reducing the power consumption.
61	—	——	——	Not used. Open.
62	I	Hi	STAND-BY[Lo]	Not used. Connected to 3V power supply.

Pin No.	I/O	Active Level	Abbreviation	Function
63	I	Hi/Lo	RESET[Lo]	Reset signal input from IC901 (S-μP).
64	I	Hi	NMI[Lo]	Not used. Connected to 3V power supply.
65	—	——	Vss	Ground.
66	I	(Pulse)	AF CLOCK	Clock pulse input from IC1103 (DSP).
67	—	——	——	Not used. Open.
68	—	——	Vcc	3V power input.
69	—	——	——	Not used. Open.
70	I	Hi	PAL[Lo]	NTSC model: Not used. Connected to 3V power supply. PAL model: Used. Connected to ground.
71	I	Hi	SECAM[Lo]	Not used. Connected to 3V power supply.
72	I	Hi/Lo	Hi-BAND[Lo]	Normal 8 model: Not used. Connected to 3V power supply. Hi-8 model: Used. Connected to ground.
73	I	Lo	MD0	Not used. Ground.
74	I	Hi	MD1	Not used. Connected to 3V power supply.
75	I	Hi	MD2	
76	—	——	AVcc	5V power input (for analog circuits in microprocessor).
77	—	——	V.REF	A/D reference voltage input (connected to 5V power supply).
78	I	0V-5V	F.DET	F-value detection input. Receives the F.DET voltage detected by IC1201 (F.DET/IRIS DRIVE) and compares this with the reference voltage input via pin 77 to detect the F-value.
79	I	0V-5V	V.MOVE	Receives vertical camera shake correction data from IC1401 (GYRO (VERT.)) via IC1403 (GYRO AMP).
80	I	0V-5V	H.MOVE	Receives horizontal camera shake correction data from IC1402 (GYRO (HORIZ.)) via IC1403 (GYRO AMP).
81	I	0V-5V	TEMP-ADJ.	Temperature change detection input. Detects variations in the forward voltage at the connected diode to correct the back-focus.
82	I	0V-5V	CAM KEY2	Camera switch detection input (Manual focus).
83	I	0V-5V	CAM KEY1	Camera switch detection input (EIS, fade, cinema mode, instant zoom).
84	O	0V-5V	HALL-ADJ.0	Drives bias generator in IC1201 (F.DET/IRIS DRIVE) via Q1201 (BUF) to control the bias voltage of the Hall devices.
85	O	0V-5V	HALL-ADJ.1	Controls the offset voltage of IC1201 (F.DET/IRIS DRIVE).
86	—	——	AVss	Ground.
87	I	(Pulse)	FV	Receives the vertical sync pulses that detect the iris detection area, from IC1103 (DSP).
88	I	——	NEAR-SW	Not used. Open.
89	I	——	FAR-SW	Not used. Open.
90	I	(Pulse)	FP	Field discrimination pulse input.
91	I	(Pulse)	EP2	Receives pulses which discriminate the iris detection area.

Pin No.	I/O	Active Level	Abbreviation	Function
92	—	——	Vss	Ground.
93	I	(Pulse)	CHD	Horizontal sync input.
94	—	——	——	Not used. Open.
95	0	(Pulse)	SUB-PWM	
96	—	——	——	Not used. Open .
97	0	(Pulse)	CRTN-CNE	Supplies pulses to IC1103 (DSP) to control the wipe fade operation.
98	—	——	——	Not used. Open .
99	0	(Pulse)	IRIS PWM	Iris motor drive output .
100	—	——	——	Not used. Open.

2-2. System Control Microprocessor (IC901: S-μP)

Pin No.	I/O	Active Level	Abbreviation	Function
1	0	(Pulse)	AUD SW30Hz	Outputs switching pulses to IC401 (AUDIO PROCESS).
2	0	Hi/Lo	x2 PB	Hi: x2 platback mode. Lo: Normal playback mode.
3	0	Lo	CH2 REC[Lo]	Output the signals to select the video heads for recording.
4	0	Lo	CH1 REC[Lo]	Go "Lo" in the corresponding channel period during recording.
5	0	Hi	B.LIGHT	Not used. Open.
6	0	(Pulse)	SW30Hz	Head switching pulse output
7	0	Hi	OPTICAL ON	TYPE720/620/520/220: Not used. Open. TYPE521: Contorl the AV modulater (IC1: MOD).
8	0	Lo	PB[Lo]	Output to control the mode of the video processor. Goes "Lo" during playback.
9	0	Hi	PB	Output to control the mode of the video processor. Goes "Hi" during playback.
10	0	Hi	DC LIGHT ON	Outputs "Hi" with power on to turn on Q501 and Q502 (DC LIGHT SW), thus supplying power to the DC camera light terminals.
11	0	(Pulse)	END LED	End LED drive output. Outputs pulses of approx. 50Hz when power is turned on.
12	0	Hi	CYL. ST-BY	Cylinder motor start auxiliary output. Outputs "Hi" for 50 ms when the motor is started in the forward rotation direction.
13	0	Lo	RESET[Lo](CAM)	Camera block power supply control output. Outputs "Hi" when power is turned on and "Lo" when power is turned off to initialize the camera block (IC1106: D-μP).
14	0	Hi	VCR ON	Power control output. Outputs "Hi" when power is turned on.
15	I	Lo	CAM SW[Lo]	Power switch detection input. "Lo" is input during recording (camera mode).

Pin No.	I/O	Active Level	Abbreviation	Function
16	I	Lo	VCR SW[Lo]	Power switch detection input. "Lo" is input during playback (VCR mode).
17	I	Lo	EJECT SW[Lo]	Eject switch detection input. When "Lo" is input, the camcorder performs the eject operation even when the power is turned off (standby release input).
18	I	Lo	TAPE STAGE[Lo]	Cassette holder open/close detection input. "Lo" is input when the cassette holder is closed.
19	I	Hi/Lo	ME/MP[Lo] SW	Input to discriminate the type of tape. Hi: ME (metal evaporated) tape, Lo: MP (metal powder) tape.
20	I	Lo	WAKE UP[Lo]	Standby release input. When the camera power is turned on, "Lo" is input to release the standby mode. IC901 detects the inputs of each switch to start operation.
21	I	Lo	REC START[Lo]	Recording start/stop switch detection input.
22	I	Hi	BATT.	Not used. Connected to ground (R737: 100kΩ).
23	I	Hi	Hi BAND	Playback mode detection input. IC901 receives the playback mode detection signal sensed by IC2101 (VIDEO PROCESS) and instructs IC904 (CHARA. GEN.) to generate the display signals and also transfers the operation mode data to IC201. Open for models with which only normal tapes are used.
24	I	Hi	TEST PROG.	Test program start detection input. A test program is executed when "Hi" is input.
25	I	Hi/Lo	PANEL	Not used. Connected ground.
26	I	Lo	AV CONT.[Lo]	Input to detect whether an external AV signal is input or not. "Lo" is input when an AV input cable is connected to the AV input/output connector (JK200: AV IN/OUT).
27	0	Hi	MUTE	Audio muting output. Outputs "Hi" to mute sound.
28	0	Hi/Lo	CAM/LINE[Lo]	Video processor mode control output. Outputs "Hi" during camera recording and "Lo" with an external (line) signal.
29	0	Hi/Lo	SYNCHRO EDIT	Table-top VCR mode control output. The operation mode of the VCR connected to JK200 (AV IN/OUT) is controlled remotely using the pause switch. "Hi" output sets the VCR to the pause mode and "Lo" output releases the pause mode (record mode).
30	0	Hi	TRICK PLAY	Controls the video processor operation mode. Outputs "Hi" during trick play.
31	0	Hi	OSD RESET	Outputs "Lo" with power on and is set to open with power off to initialize IC904 (CHARA. GEN.).
32	—	——	REC PAUSE[Lo]	Not used. Open
33	0	Hi	CAPST. ST-BY	Capstan motor power control output
34	0	Lo	VCR ON[Lo]	Power control output. Outputs "Lo" when power is turned off.

Pin No.	I/O	Active Level	Abbreviation	Function
35	—	——	——	Not used. Open
36	—	——	——	
37	O	Hi/Lo	ATF SEL	Auto track finding (ATF) pilot signal select output.
38	O	Hi/Lo	TRACK. MODE	Output to select the pilot signal from IC601 (ATF). Hi: VCO output, Lo: Playback (PB) FM signal
39	—	——	GND	Grounded.
40	I	Lo	RESET[Lo]	Microprocessor reset input. "Lo" input resets the microprocessor.
41	—	——	Vss	Connected to ground.
42	O	(Pulse)	X' TAL	Drive X901 to generate 12MHz main clock pulses.
43	I	(Pulse)	X' TAL	
44	I	(Pulse)	LOAD(D-S)	For data communications with IC1106 (D-μP).
45	I	(Pulse)	DATA(D-S)	
46	O	(Pulse)	DATA(S-D)	
47	I	(Pulse)	CLOCK(D-S)	
48	I	Hi/Lo	NTSC/PAL[Lo]	Internal mode select input (NTSC: 4V or more, PAL: 0.8V or less)
49	I	0V-5V	VCR KEY2	VCR operation switch detection input (playback, date/title).
50	I	0V-5V	SHORT DET.	Input to detect the short-circuits in the power circuit.
51	I	0V-5V	MECHA. STATE	Mechanism state switch detection input.
52	—	——	AVss	Grounded.
53	I	——	V.REF	Reference voltage input.
54	—	——	AVdd	5V power input.
55	I	0V-5V	CST SW[Lo]	Hi-8 MP tape/erase prevention tab detection input.
56	I	0V-5V	BATT./SHORT.	Input to detect the battery remaining level and short-circuits in the power circuit.
57	I	(Pulse)	PB PLT	Playback pilot signal (PB PILOT) input.
58	I	0V-5V	VCR KEY1	VCR operation switch detection input (rewind, fast forward, stop).
59	I	0V-5V	TRACK ADJ.	For the connection of a tracking control for adjustment. When an ATF-R jig is connected to PG601 (test plug), the variable resistor on the ATF-R jig can be used as a tracking control.
60	I	(Pulse)	REW END	Take-up and supply tape end detection inputs.
61	I	(Pulse)	FWD END	
62	I	(Pulse)	PB ENV.	Playback (PB) FM signal input.
63	I	(Pulse)	S.REEL	Supply/take-up reel sensor inputs. Used to calculate the remaining tape and to detect reel lock.
64	I	(Pulse)	T.REEL	
65	I	Hi/Lo	HB/LB[Lo]	Internal mode select input. (Hi: Hi-8 models, Lo: models used exclusively with normal tapes).

Pin No.	I/O	Active Level	Abbreviation	Function
66	I	(Pulse)	C.SYNC	Composite sync signal input. The separated vertical sync signal is divided by two to generate the 1/2V.SYNC pulse which is used to control the cylinder speed during recording (reference signal).
67	I	(Pulse)	VCO	Receive the signal from the VCO in IC601 (ATF) to fix the frequency of the recording pilot signal (VCO's output).
84	O	(Pulse)	VCO CONT.	
68	I	(Pulse)	TACH PULSE	Tach pulse input. Feedback signal that controls the recording phase of the cylinder.
69	I	(Pulse)	CYL FG	Cylinder FG (CYL. FG) pulse input. Controls the cylinder speed during recording and playback.
70	I	(Pulse)	CAPST. FG	Capstan FG (CAPST.FG) pulse input. Used for counting of the linear time counter and recording restart control (assemble recording).
71	O	Hi	LOAD	Loading motor drive outputs.
72	O	Hi	UNLOAD	
73	—	——	——	Not used. Open.
74	O	(Pulse)	OSD LOAD	Activates communications with IC904 (CHARA. GEN.).
75	O	PWM	CYL.SPEED	Cylinder/capstan servo control outputs.
76	O	PWM	CAPST.SPEED	
77	I	(Pulse)	CAPST.FG	Capstan FG (CAPST.FG) pulse input. Used for counting of the linear time counter and recording restart control (assemble recording).
78	I	Lo	BACK UP[Lo]	Inputs whether a battery is attached or not. "Lo" is input when the battery is detached, to shift the microprocessor to the backup mode in which the data is saved.
79	—	——	TACH SEL	Not used. Open.
80	O	(Pulse)	DATA(S-CG/WYC/AUD)	For data communications with IC904 (CHARA. GEN.), IC201 (LUMA/CHROMA PROCESS) and IC401 (AUDIO PROCESS).
81	O	(Pulse)	CLOCK(S-CG/WYC/AUD)	
82	O	Hi	FADE	Rapid audio fading output. Outputs "Hi" when fading is started to fade the audio signal in rapidly, synchronized with the video signal.
83	I	Lo	Hi-8 REC[Lo]	Internal mode select input (Hi: Hi-8 models, Lo: models used exclusively with normal tapes).
85	I	(Pulse)	IR REMOTE	Remote operation signal input from the infrared receiver.
86	I	(Pulse)	OSC(32kHz)	Generate 32kHz sub-clock pulses.
87	O	(Pulse)	OSC(32kHz)	
88	—	——	Vss	Grounded.
89	—	——	Vdd	5V power input.
90	—	——	——	Not used. Connected to 5V power supply.
91	O	Hi	CYL.REVERSE	Cylinder motor reversing control output.

Pin No.	I/O	Active Level	Abbreviation	Function
92	O	Lo	CAPST.REVERSE [Lo]	Capstan motor reversing control output
93	O	Lo	REC[Lo]	Output to control the video processor during recording.
94	—	——	——	Not used. Open
95	O	Hi	FE CONT.	Flying erase head oscillation control output
96	O	Lo	PRE CONT[Lo]	Preamp activation signal. Outputs "Hi" during playback to activate the preamp.
97	O	(Pulse)	H.DRIVE	Artificial H. sync signal output
98	O	(Pulse)	ADDV+SQ	Artificial V. sync signal + video muting signal output
99	O	(Pulse)	SW30Hz[Lo]	Inverted head switching pulse output
100	—	——	——	Not used. Open

CHAPTER 8 APPENDIX

Self-Diagnosic Functions

1. OVERVIEW

The camera/recoder has the following self-diagnostic functions.

- Occasional defect self-diagnostic function (A mode)
- Mechanical block self-diagnostic function (B mode)

Fig. 1-1 shows the self-diagnostic coverage range. The self-diagnostic functions of the camera/recoder are engaged by the system control μP (IC0901) which detects, memorizes and displays data related to defects in the mechanical block control system.

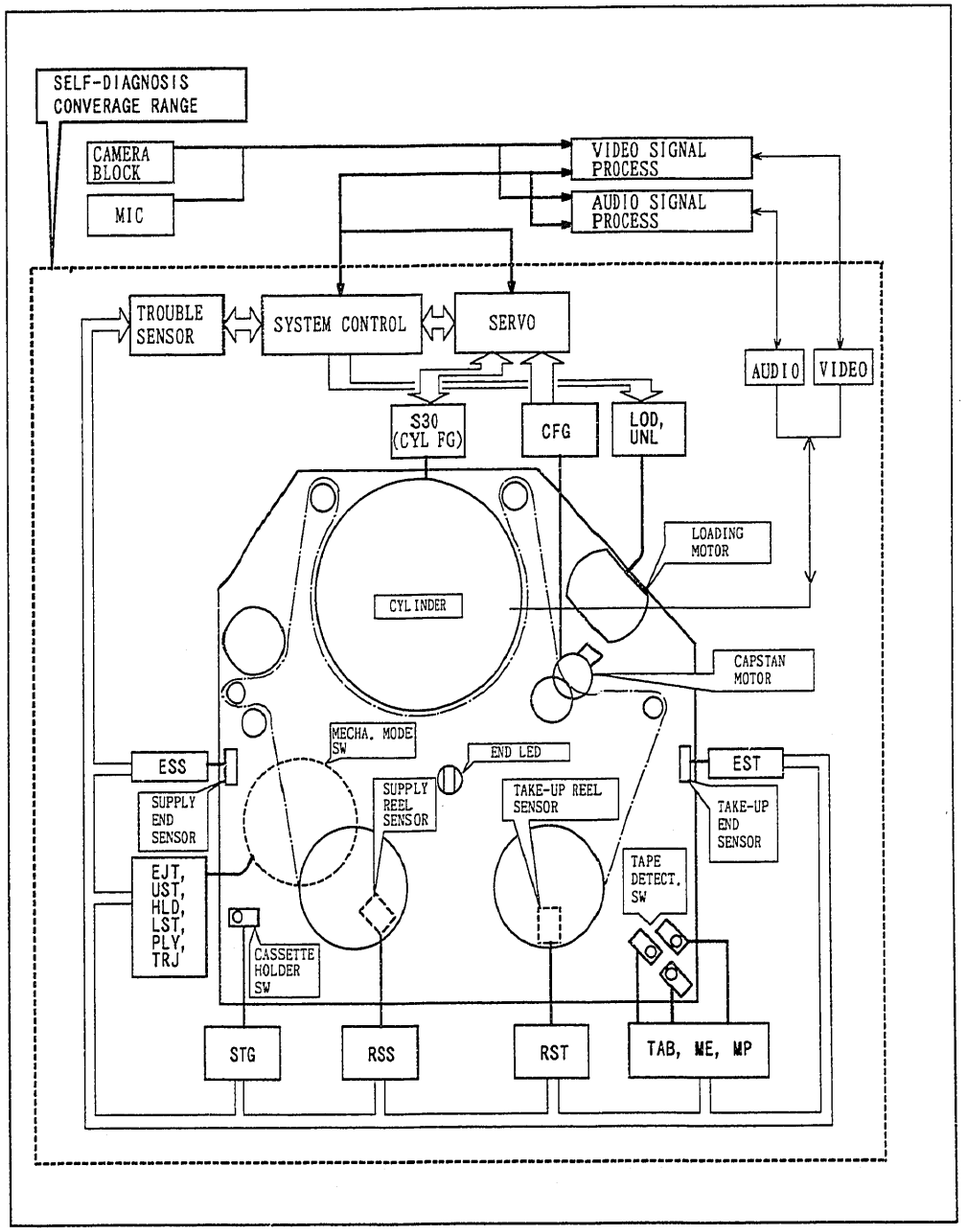


Fig. 1-1 Self- Diagnostic Coverage Range

2. DETAILS OF DISPLAY/DETECTION AND APPLICATIONS

Table 2-1 summarizes the details of display/detection of the self-diagnostic functions and their applications.
Fig. 2-1 shows the operational processes of the self-diagnostic functions.

Table 2-1 Details of Display/Detection of Self-Diagnostic Functions and their Applications

	Occasional defect self-diagnostic function (A mode)	Mechanical block self-diagnostic function (B mode)
Details of display/ detection	The system control μP memorizes and displays the defect data. (If several defects have occurred, only the last defect detected is memorized.)	Displays the data for the defect that has occurred when the B mode is set.
Application	Used when the defective symptom is not reproduced during servicing.	Used to detect the cause of the defect (in the mechanical block or electrical circuits) and to determine the defective position of the mechanical block.
Detected parts	Trouble sensors · Take-up end sensor (EST) · Supply end sensor (ESS) · Take-up reel sensor (RST) · Supply reel sensor (RSS) Cylinder (S30) Capstan motor (CFG)	Trouble sensors · Take-up end sensor (EST) · Supply end sensor (ESS) · Take-up reel sensor (RST) · Supply reel sensor (RSS) Cylinder (S30) Capstan motor (CFG) Loading motor (LOD, UNL) Mechanism mode switch (EJT, UST, HLD, PLY, LST, TRJ) Tape detection switches, etc. · Erase prevention tab detection switch (TAB) · ME/MP detection switch (ME) · Hi-8 MP detection switch (MP) · Cassette holder switch (STG)
Cautions	When the fast forward or rewind mode is entered, the defect data is erased.	Engage the B mode after completing the A mode. If the B mode is engaged first, the defect data may be erased.

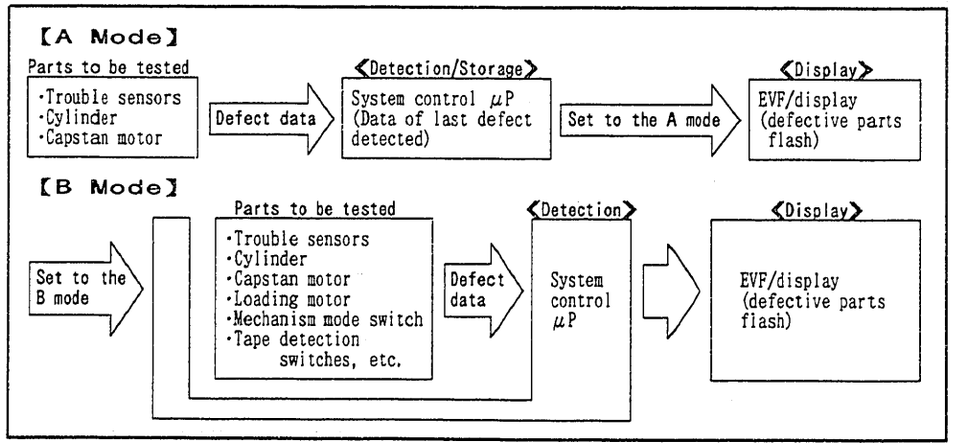


Fig. 2-1 Operation Processes of Self-Diagnostic Functions

3. SETTING PROCEDURE AND DETAILS OF DIAGNOSIS

3.1 Occasional Defect Self-Diagnostic Function (A Mode)

(1) Setting Procedure

1) Connect (attach) a power supply (battery).
↓
2) Set the power switch to "CAMERA" or "VIDEO".
↓
3) Press the DATE button.
↓
[Within half a second]
↓
4) Press the DATE and REW buttons simultaneously and hold them for 3-5 seconds.
↓

```
E2 <V0.23>95/09/06 13:18
  LOD     EJT     UNL
  RSS     UST     RST
  ESS     HLD     EST
  CFG     LST     S30
  TAB     PLY     STG
   ME     TRJ      MP
□□     0123456789ABCDEF
0000  H:0000000002001000
      L:110111180100BD00
NTSC/NTSCWYC4209 AUD1040
```

《Results of self-diagnosis》
· The shaded items flash if they are defective.
· See Table 3-1 for the results of diagnosis.

Cautions:
· Do not press any buttons other than those specified during self-diagnosis; otherwise, it may cause a malfunction.
· Only the shaded items are tested in the A mode. Other items are ignored.

[To release]
· Set the power switch to "OFF".
· Press the DATE and REW buttons simultaneously.

(2) Results of diagnosis

Table 3-i summarizes the results of diagnosis and the circuits/parts deemed to be defective in the A mode.

Table 3-1 Details of A Mode Self-Diagnosis

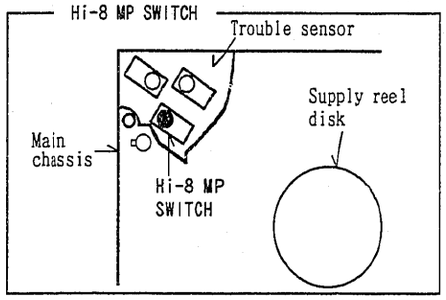
Part	Display	Results of diagnosis	Parts/circuits deemed to be defective
Trouble sensors	RSS	The pulse from the supply reel sensor is defective.	· Supply reel disk · Trouble sensor (reel sensor) · IC0901
	RST	The pulse from the take-up reel sensor is defective.	· Take-up reel disk · Trouble sensor (reel sensor) · IC0901
	ESS	The pulse from the supply end sensor is defective.	· Trouble sensors (end sensor/end LED) · Q0905 · IC0901 · DC-DC converter circuit (B+ line)
	EST	The pulse from the take-up end sensor is defective.	· Trouble sensors (end sensor/end LED) · Q0905 · IC0901 · DC-DC converter circuit (B+ line)
Cylinder	S30	The SW30 (CYL. FG) pulse is defective.	· Cylinder · IC0631 · IC0901 · DC-DC converter circuit
Capstan motor	CFG	The CAPST. FG pulse is defective.	· Capstan motor · IC0631 · IC0901 · DC-DC converter circuit

3.2 Mechanical Block Self-Diagnostic Function (B Mode)

Caution: Complete the A mode before engaging the B mode.

(1) Setting procedure

1) Connect (attach) a power supply (battery).
↓
2) Press the EJECT button to set to the eject state.
↓
3) Press the "Hi8 MP" switch on the trouble sensor and the DATE button and hold them, then set the power switch to "CAMERA" or "VIDEO". (Hold this state for a few seconds.)
↓
[Within 3 seconds]
↓
4) Close the cassette lid.
↓




```
E2 <V0.23>95/09/06 13:18
   LOD      EJT      UNL
   RSS      UST      RST
   ESS      HLD      EST
   CFG      LST      S30
   TAB      PLY      STG
    ME      TRJ       MP
 ⊏⊐     0123456789ABCDEF
0000  H:0000000002001000
      L:110111180100B000
NTSC/NTSCWYC4289 AUD1040
```

《Results of self-diagnosis》
- The defective items flash.
- The shaded items are the tape detection switches and cassette holder switch which flash when they are not pressed.
- See Table 3-2 for the results of diagnosis.

Cautions:
- Do not press any buttons other than those specified during self-diagnosis; otherwise, it may cause a malfunction.
- The indications in dotted lines are not covered by the self-diagnostic functions.
- It is normal for the diagnostic procedure to end in the eject state. Do not close the cassette lid thereafter.

[To release]
- Set the power switch to "OFF".

↓
5) The procedure ends in the eject state.

Caution: Do not close the cassette lid.

(2) Results of diagnosis

Table 3-2 summarizes the results of diagnosis and the circuits/parts deemed to be defective in the B mode.

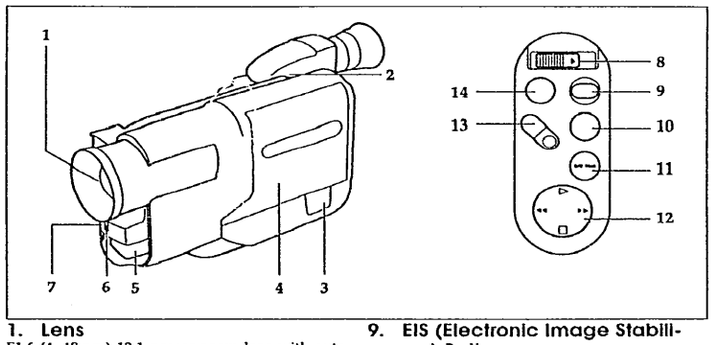
Table 3-2 Results of B Mode Self-Diagnosis (1/2)

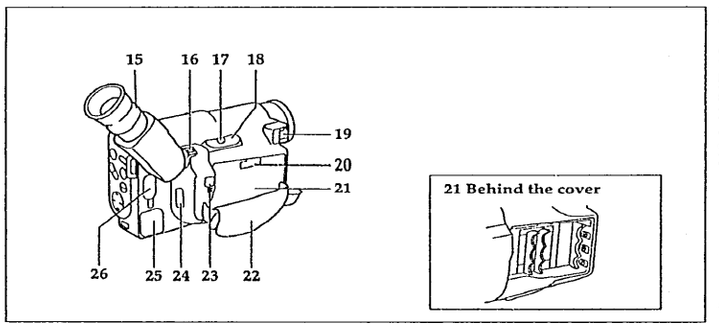
Part	Display	Results of diagnosis (Defect display conditions)	Parts/circuits deemed to be defective
Loading motor	LOD	The loading motor is defective when running forward. (Does not load within 10 seconds.)	• Loading motor • Rotation of drive gears in mechanical block faulty • IC0671 • IC0901 • IC0902 • Power supply (S5V, B+) lines
	UND	The loading motor is defective when running in reverse. (Does not unload within 10 seconds.)	
Trouble sensors	RSS	The pulse from the supply reel sensor is defective. (There is one pulse or less within two seconds.)	• Supply reel disk • Trouble sensor (reel sensor) • Capstan motor • IC0901
	RST	The pulse from the take-up reel sensor is defective. (There is one pulse or less within two seconds.)	• Take-up reel disk • Trouble sensor (reel sensor) • Capstan motor • IC0901

Table 3-2 Results of B Mode Self-Diagnosis (2/2)

Part	Display	Results of diagnosis (Defect display conditions)	Parts/circuits deemed to be defective
Trouble sensors	ESS	The pulse from the supply end sensor is defective. (No pulse is input for more than 100 ms continuously within two seconds.)	• Trouble sensors (end sensor/end LED) • Q0905 • IC0901 • DC-DC converter circuit (B+ line)
	EST	The pulse from the take-up end sensor is defective. (No pulse is input for more than 100 ms continuously within two seconds.)	• Trouble sensors (end sensor/end LED) • Q0905 • IC0901 • DC-DC converter circuit (B+ line)
Tape detection switches, etc.	TAB	The erase prevention tab detection switch detects the record inhibit state (OFF).	Caution: These switches flash when they are not pressed. It is abnormal if they flash when pressed. • Trouble sensor • IC0901
	ME	The ME/MP tape detection switch detects the MP state (OFF).	
	MP	The Hi-8 MP tape detection switch detects the normal MP state (OFF).	
	STG	The cassette holder switch detects the state where the cassette holder is not lowered (OFF).	
Capstan motor	CFG	The CAPST. FG pulse is defective. (150 pulses or less within two seconds.)	• Capstan motor • IC0631 • IC0901 • DC-DC converter circuit
Cylinder	S30	The SW30 (CYL. FG) pulse is defective. (No pulse is input normally within two seconds.)	• Cylinder • IC0631 • IC0901 • DC-DC converter circuit
Mechanism mode switch	UST	The unloading stop position detection signal is defective.	Caution: The positions shown on the left are detected in the order described within 10 seconds. • Mechanism mode switch • Trouble sensor • IC0901 • Defective rotation/phase of drive gears in mechanical block • Loading motor • Tape transport components • Guide roller rails • DC-DC converter circuit
	HLD	The half loading position detection signal is defective.	
	LST	The loading stop position detection signal is defective.	
	PLY	The play position detection signal is defective.	
	TRJ	The transient position detection signal is defective.	
	EJT	The eject position detection signal is defective.	

Identifying Controls





1. Lens
F1.6 (4~48mm) 12:1 power zoom lens with auto focus and auto iris functions.

2. Viewfinder BRIGHT, COLOR and TINT controls
Refer to page 56.

3. Cassette Holder Close Button
CAUTION: Be sure to press this button to close the cassette holder. Otherwise, the tape may become slack and may be damaged.

4. Cassette Holder
A power source must be connected to the camcorder before a cassette can be inserted or removed.

5. Stereo Microphone
Sensitive to sounds coming from the direction in which the camera is pointed.

6. Record Indicator
This indicator lights when the camcorder is recording.

7. Infrared Receiver
The area where infrared signals from the wireless remote are received. Aim the remote control to this area for best results.

8. EJECT Switch
A power source must be connected before cassettes can be inserted or removed though the CAM/OFF/VIDEO switch may be set to OFF ("Inserting and Removing Cassettes,"p18).

9. EIS (Electronic Image Stabilizer) Button
EIS corrects slight shaking of an image ("Using the Electronic Image Stabilizer," p. 36).

10. 16x9 button
With this button the picture format can be switched from 4:3 (picture format of a normal TV set) to 16:9 ("Using 16x9", P38).

11. DATE/TITLE (DISP.) Button
Use this button to record the date, time and title on your tape. Any time that the date, time and title displays appear in the viewfinder, they are recorded on your tape. This button can be used instead of DISPLAY button on the remote control in the VIDEO mode.

Note: Be sure to insert the clock battery before setting the date and time or creating a title.

12. Ring of Tape Transport
▶▶ – F.F Button
Use this button to fast forward tapes or for visual search. During visual search the camcorder fast forwards at approximately 9 times normal playback speed. Also use this button to set date and time.

□ – STOP Button
Use this button to stop playback, fast forward, or reverse. Also use this button to set date and time.

◀◀ – REW Button
Use this button to fast rewind tapes or for visual search. During visual search the camcorder rewinds at approximately 7 times normal playback speed. Also use this button to set date and time. Furthermore, use this button to review the last few seconds of the tape you are recording.

▷ – PLAY Button
Use to playback recorded tapes.

13. FOCUS Control Buttons
Press these buttons simultaneously to select manual or automatic focus. For manual focusing ("Using Manual Focus", p. 36), press the F or N buttons to bring the subject into focus. When using manual focus, FOCUS appears in the viewfinder.

14. FADE Button
The FADE button features three modes; white fade, wipe fade, and zoom fade ("Using Fade," p. 37).

15. Diopter Control
To use the electronic viewfinder, turn this control for your optimum focus adjustment.

16. CAM/OFF/VIDEO Power Switch
Hold down the red button as you slide the switch to CAM or VIDEO. You do not need to hold down the red button to slide the switch to OFF.

17. INST. ZOOM (Instant Zoom) Button
Use this button to magnify the image being recorded 1.5 times.

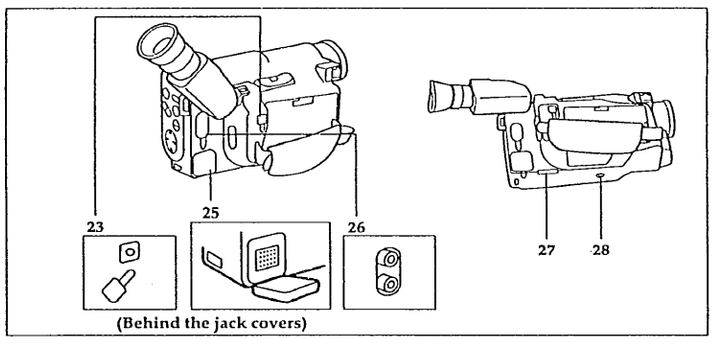
18. Power Zoom Switch
Use this to zoom automatically ("Using the Power Zoom," p 34).

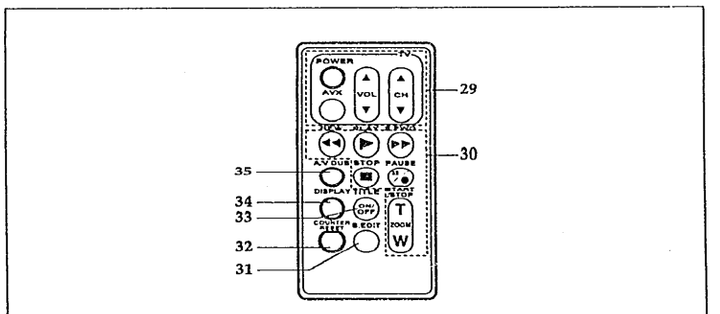
19. Camera Light Shoe
Attach the DC camera light here.

20. OPEN Lever
Use this to open or close the cover of the power supply attachment holder ("Camcorder Batteries", p15).

21. Power Supply Attachment Section (Behind the cover)
Attach a battery or alkaline batteries here ("Camcorder Batteries", P15 ,16).

22. Hand Strap
Refer to page 13.





23. DC IN Jack (Behind the jack cover)
When using the AC adapter/charger, connect one end of the DC cord (provided) to this jack and the other end to the DC OUTPUT jack of the AC adapter/charger. When using the car battery cord (optional), connect this jack and the DC OUTPUT jack of the car battery cord.

24. Start/Stop Button
When the CAM/OFF/VIDEO switch is in CAM press this button to start recording. When pressed a second time the camera pauses.
During playback use this button to stop the tape temporarily. Pressing a second time resumes normal playback.

25. AV IN/OUT Jack (Behind the jack cover)
Use this jack to connect the camcorder to a VCR or television ("Playing Back Your Recording," p27,28, "Dubbing from the Camcorder to a VCR," p45 "Recording Television Programs", p54).

26. AV OUTPUT Jacks (Behind the jack cover)
You can use an audio/video cable (not supplied) instead of the AV stereo output cable (provided) when viewing the playback picture on the TV, etc.
- Connect the yellow plug of the audio/video cable to the yellow jack (VIDEO OUT) and the white plug to the white jack (AUDIO OUT).
- The playback sound becomes monaural.

27. Clock Battery Compartment
Pull the battery holder and install the clock battery (provided).

28. Tripod Mounting Threaded Socket
Use this threaded socket to mount the camcorder to a tripod.

29. TV Control Buttons
Used for controlling the TV.
- POWER : Turns the TV on and off.
- AVX : Used for recording picture and sound from an auxiliary input.
- VOLUME: Increase (▲) or decrease (▼) the volume.
- CHANNEL : Top (▲) button switches to the next higher channel, bottom (▼) button switches to the next lower channel. For these to operate, you must have preset your channels.

("Controlling your TV with the Camcorder's Remote Control" P51).

30. Recorder's Remote Control
The shaded buttons on the remote control have the same functions as the corresponding buttons on the camcorder.

31. S.EDIT (Synchro Edit) Button (only on the remote control)
Use this button to activate the synchro edit function for dubbing ("Using Synchro Edit", P46).

32. COUNTER RESET Button (only on the remote control)
Use this button to reset the linear time counter to 0:00:00.

33. TITLE ON/OFF Button (only on the remote control)
Use this button to create and record titles for your tapes ("Creating and Recording a Title," p 43).

34. DISPLAY Button
Use this button to select the viewfinder and TV display ("Using the Display Button," p41). This button can be used instead of the DATE/TITLE button on the camcorder in the VIDEO mode.

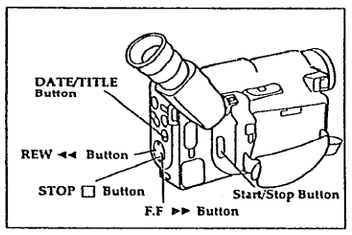
35. A/V DUB Button (only on the remote control)
Use this button to record new audio and video over existing audio and video.

Setting the Date and Time

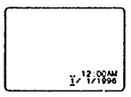
Take the time to set the date and time now. The date and time can be recorded on your tapes to act as a handy reference when viewing them later. Use the following procedure to set up the display for the current date and time.

Note: Be sure to insert the clock battery before setting the date and time. Although the date and time can be set without the clock battery inserted, they will disappear when the battery providing power to the camcorder is removed.

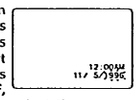
Make sure that the current time is displayed correctly before you start filming.



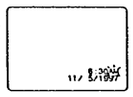
1. Load the battery ("Loading the Batteries: Camcorder batteries" p.15). Press the red button on the CAM/OFF/VIDEO switch as you slide it to CAM.
2. Press the DATE/TITLE button and look into the viewfinder. The date and time should appear in the lower right with the "1" flashing.



3. Pressing the F.F button gives you higher numbers while the REW button gives you lower numbers. Select the right month and press STOP button. Use the F.F, REW and STOP buttons to select the proper day, year, hour, minute, and AM or PM .



4. After setting the AM/PM, press the DATE/TITLE button. The display changes and the internal clock starts.



Note: After the date and time are set, "◷ AUTO" appears and the camcorder enters the automatic date recording mode. See "Date Recording" on page 33.

Correcting the Date and Time

1. Press the DATE/TITLE button while pressing the STOP button. The flashing cursor appears at the month.
2. Move to where you need to make the correction with the STOP button and use the F.F and REW to correct.
3. Press the DATE/TITLE button to set the corrected date and time.

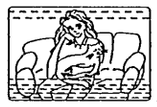
Simple Playback (Using the Electronic Viewfinder)

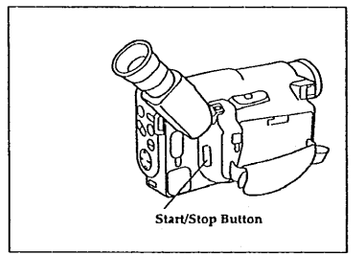
1. Insert the cassette ("Inserting and Removing Cassettes," p.18).
2. Hold down the red button on the CAM/OFF/VIDEO switch while sliding the switch to VIDEO.
3. Press the PLAY button and enjoy your video.
4. Press the STOP button when finished.

Using Still

To view a still picture during playback press the Start/Stop. Press the Start/Stop button again to resume playback. If you leave the camcorder in play/pause mode for more than 5 minutes the camcorder automatically stops the cassette to prevent damage to the tape.

Note: When you engage play/pause mode the still picture will have some interference or noise. This is normal.



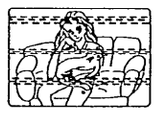


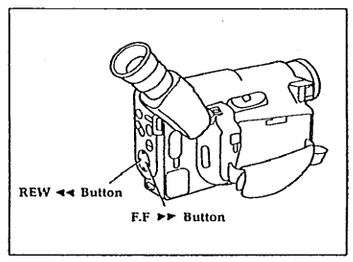
Using Forward and Reverse Search

When looking for a particular point in your videotape use the F.F button and REW button to find the spot quickly.

- Press F.F button during playback to play the tape forward at approximately 9 times normal speed. Press PLAY button to return to normal playback.
- Press REW button during playback to play the tape backwards at approximately 7 times normal speed. Press PLAY button to return to normal playback.

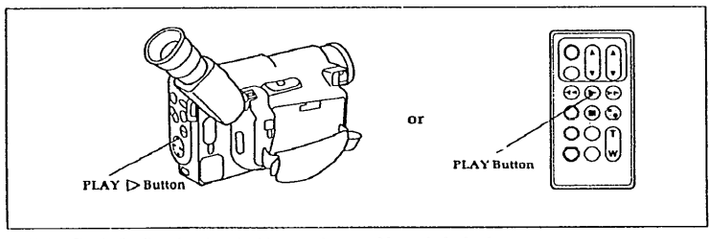
Note: When you engage F.F button or REW button the picture will have some interference or noise. This is normal during search mode.





To Play Back a Recording at Double the Normal Speed

Activate the video playback mode by moving the CAM/OFF/VIDEO switch to "VIDEO". Press the PLAY button located on either the remote control or the camcorder one time and the video will appear in the viewfinder or a connected monitor. While the tape is playing press the PLAY button again and the camcorder will now play both audio and video at double speed. To restore normal playback, press the PLAY button on either the remote control or the camcorder.



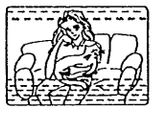
Note: The indication showing double speed playback does not appear.

Note: When double speed playback is activated, both the picture and sound are played back at twice the normal speed. This will cause noise lines to appear on the picture and the sound to become warbled. (With some tapes the width of the noise band may vary or noise may flow.)

Note: With some TVs, the synchronization may unlock and the picture may fluctuate or the picture may become black-and-white.

<Normal playback>

<Double speed playback>

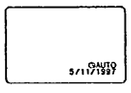


Date Recording

When the date has been set, the camcorder will enter the automatic date recording mode automatically.

1. Press the red button on the CAM/OFF/VIDEO switch as you slide it to CAM.
2. Press the DATE/TITLE button to specify the date display you want to record.

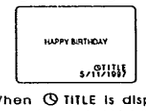
◷AUTO and Date — Automatic Date Recording
This option records the date automatically once a day at the beginning of recording for 10 seconds.



Note: The camcorder records the same date when;
— the cassette is replaced.
— you select ◷AUTO and date display again.
— the recording is less than 10 seconds long.

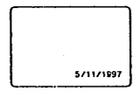
Note: If the date changes while recording continues over 10 seconds, the new date is recorded for about 10 seconds the next time you make a recording.

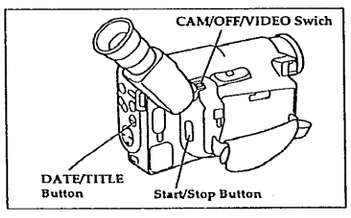
◷TITLE and Date —Automatic Title and Date Recording
This option records the date and created title (see "Creating and Recording a Title" on page 43) automatically once a day at the beginning of recording for 10 seconds.



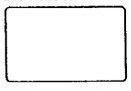
Note: When ◷ TITLE is displayed in the viewfinder, the title cannot be turned on or off using the remote control.

Date —Date Recording
The camcorder records the date with the picture all the time.

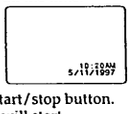




No Display—No Date Recording
The camcorder does not record the date.



Date and Time—Date and Time Recording
The camcorder records the date and time with the picture all the time.



3. Press the start/stop button. Recording will start.

Note: When ◷ AUTO and date display is selected, the date disappears about 10 seconds after recoding is started.

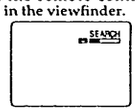
Note: When ◷ TITLE and date display is selected, the title and date disappear about 10 seconds after recoding is started.

Date Search

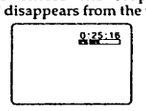
The date search function memorizes the start and end positions of recordings you made on a specific day so you can easily locate those positions later as long as the cassette is left in the camcorder.

Note: Be sure that the date and time are set.

1. Attach a power source and slide the CAM/OFF/VIDEO switch to VIDEO.
2. Press the DATE/TITLE button (the DISPLAY button on the remote control) to display "SEARCH" in the viewfinder.



3. Press the REW button to search for the start position from which you last made a recording or the F.F button (the F.FWD button on the remote control) to recording end position.
4. When the required position is located, the camcorder enters the stop mode and "SEARCH" disappears from the viewfinder.



Note: If you have ejected the cassette, this function will not operate with that cassette. (When a cassette is inserted and the recording is started, the position is identified as the recording start position on that day.)

Note: If the date/title battery is not inserted, the date search function does not operate when the battery providing the power to the camcorder is removed.

Note: When the cassette was recorded by another camcorder, the date search function does not operate.

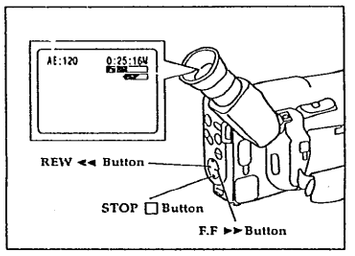
Note: The date search function is released when you press the STOP button during date search mode.

Note: If the recorded time is less than 30 seconds, the date search function may not operate normally.

Using Memory

The linear time counter memory stops a rewinding tape at approximately 0:00:00M. This feature helps in locating a specific point in the tape to which you wish to return. An example might be that you have recorded some tape that you have already watched, you continue recording but do not care to watch the tape you recorded earlier. The memory feature returns you to the beginning of the most recent recording.

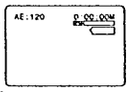
1. Press the DISPLAY button on the remote control so the linear time counter with memory is displayed as shown in the figure.
2. Start recording or playback of a cassette. Press the COUNTER RESET button on the remote control at the point to which you wish to return. The linear time counter clears to 0:00:00M.
3. Press the STOP button to stop playback, or press the start/stop recording and set the CAM/OFF/VIDEO switch to VIDEO.
4. Press the REW button and the tape stops at approximately where you reset the linear time counter. This feature works in F.F as well.



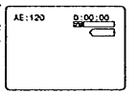
Using the Display Button

Pressing the DISPLAY button on the remote control allows you to switch the displays in the viewfinder. When the camcorder is turned on, the linear time counter appears.

- Pressing the DISPLAY button once displays the linear time counter with the memory feature.



- When a recorded tape is in the camcorder during the VIDEO mode, "SEARCH" appears in the viewfinder. (Refer to "Date Search" on page 40).
- Pressing the DISPLAY button a second time returns to the linear time counter.



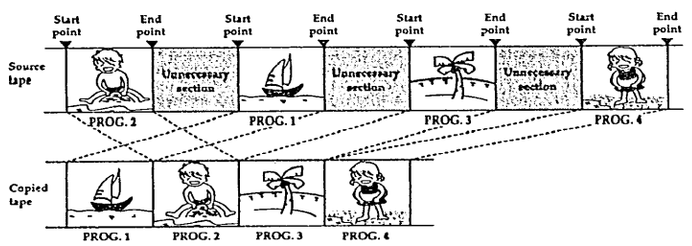
Note: The linear time counter with the memory feature in the viewfinder can also be displayed on the connected television.

Simple Programmable Edit (Edit remote control is optional accessory)

Simple programmable edit allows you to program your camcorder to select the scenes you want to copy from a pre-recorded tape. Use the edit remote control (optional) to easily copy scenes from a recorded tape in the camcorder (playback machine) onto a blank tape in a table-top VCR which handles infrared remote signals (recording machine).

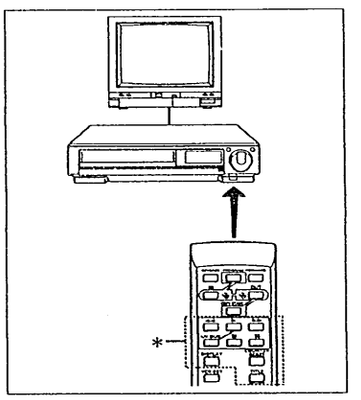
Note: Only the VM-RM20EDA edit remote control (optional) can be used with this camcorder.

Note: Some VCRs cannot be operated by the edit remote control (optional).



Programming the Remote Control for the VCR

It is necessary to program the edit remote control code to match the VCR before starting editing.



VCR Brands	Press VCR SET and This Button
Hitachi	REVERSE
Sony	PROGRAM
Panasonic	FORWARD
Toshiba	IN
Mitsubishi	COPY START
Sanyo	OUT
Sharp	◀◀
NEC	▶
JVC	▶▶
Akai	A/V DUB
Gold Star	■
PHILIPS	▮▮
RCA	DISPLAY
Zenith	COUNTER RESET
Magnavox	TITLE ON/OFF

1. Turn the VCR on.
2. Aim the remote control at the infrared receiver on the VCR and press the VCR SET button on the remote control and hold it, then press the button corresponding to the VCR's maker code. For example, if you have a RCA VCR, press the VCR SET button and hold it, then press the DISPLAY button. To check whether the remote control code matches that of your VCR or not, point the remote control at the infrared receiver on the VCR and press the VCR SET button and hold it. If the remote control code has been set, the VCR channel is counted up automatically.

Note: Your VCR should have an infrared remote control.

Note: If the channel on the VCR does not change with the above operation, you need to switch the remote control code of your VCR. Refer to the VCR's instruction manual. If the channel still does not change after you have changed the VCR's remote control code, the edit remote control cannot operate your VCR.

Note: The remote control code is held in memory until it is changed or the batteries are replaced.

Note: Point the remote control straight at the VCR's infrared receiver for operation.

Note: Use the remote control indoors. When the infrared receivers of the VCR and camcorder are exposed to direct sunlight or strong artificial light, the remote control may not operate correctly.

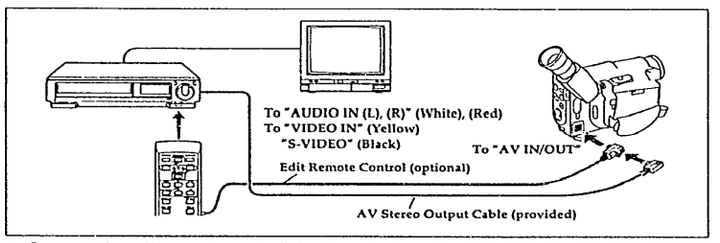
Note: The remote control cannot be operated if there is an obstacle between the remote control and infrared receiver. Especially, be careful of this during dubbing.

Note: When the edit remote control is connected to the camcorder, the buttons marked * in the figure above perform the same operations as those of the other remote control provided.

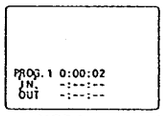
Operation

You can select up to four different scenes or segments to be copied at one time.

Note: If sunlight or strong artificial light strikes the camcorder's infrared receiver, the editing operation may not be possible.

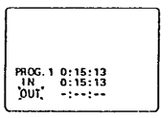


1. Connect the edit remote control to the camcoroler, and then connect the AV stereo output cable as illustrated above.
2. Insert a recorded tape into the camcorder.
3. Set the CAM/OFF/VIDEO switch of the camcorder to VIDEO.
   Turn the recording VCR on and select line input.
4. Press the PROGRAM button of the remote control. The program display appears in the viewfinder.

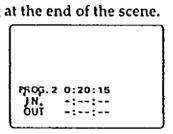


Note: If your VCR is connected to a TV, the program display will also appear on the TV screen.

5. Press the ▶ button and use the ▶▶ or ◀◀ button to search for the starting point of the segment you want to copy. Press ▶ and then ❚❚ to set the camcorder to the play pause mode.
   The liner time counter counts when searching for the starting point.
   Use the FORWARD and REVERSE buttons in the play or pause mode to fine adjust the tape position. Press FORWARD and hold it; the tape is played while the button is held. Press REVERSE and hold it for reverse play.
6. Press the IN button to store the counter reading. When you press the IN button, OUT flashes in the program display.



7. Press the ▶▶ button to search for the end of the segment you want to copy. Press ▶ and then ❚❚ to set the camcorder to the play pause mode. Use the FORWARD or REVERSE button as required to fine adjust the tape position.
8. Press the OUT button to store the counter reading at the end of the scene.



9. Continue programming as described above until you have entered up to four different segments.
10. Load a blank tape, then set the VCR to the record pause mode.
11. Point the remote control at the receiver on the VCR and press the COPY START button to start simple programmable edit.
    - The camcorder automatically searches for the beginning of the first segment and starts playback. The recording VCR automatically starts recording.
    - After recording the first segment, the camcorder automatically searches for the beginning of the next segment and resumes playback. The recording VCR is automatically released from the record pause mode and resumes recording.
    - It continues recording and pausing until all the programmed segments are edited.
12. When simple programmable edit is finished, the camcorder will enter the stop mode, and the VCR will enter the record pause mode.

Note: If you make a mistake during programming, start again from the beginning or press the COUNTER RESET button to return to the previous steps one by one and enter the correct program data.

Note: After the simple programmable edit is finished, the programmed data is erased. If you want to continue editing other segments, repeat steps 5 — 12.

Note: Most VCRs (recording machine) may be released from the record pause mode if it continues for more than five minutes.

Note: The dubbing start and end positions may slightly drift from the specified positions when certain VCRs are used.

To End Programmable Simple Edit

Press the PROGRAM button to remove the program display from the viewfinder. Then press the stop button on the recording VCR to set it to the stop mode.

Note: If the CAM/OFF/VIDEO switch of the camcorder is set to OFF or CAM when the recording VCR is in the record pause mode, the VCR enters the record mode.

General Maintenance

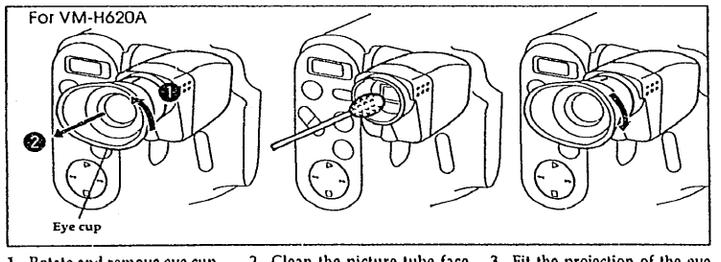
Cleaning the camcorder Heads

Dirt can accumulate on the video heads on the camcorder causing the playback picture to become blurred or appear as if video information is lost. This often means that the video heads are dirty. Use a video head cleaner such as a dry type head cleaning tape to clean the heads.

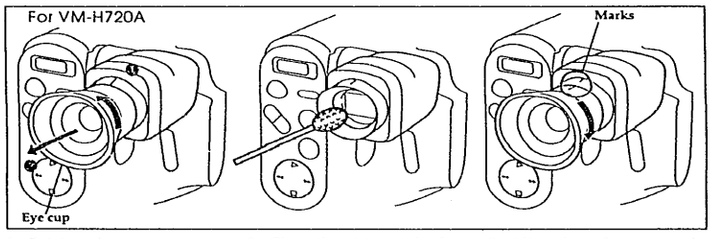
If after cleaning the heads the picture does not clear up consult your nearest dealer or VCR service center for professional head cleaning.

Cleaning the Lens and Picture Tube of the Electronic Viewfinder

The lens of the electronic viewfinder can be user-cleaned if dust, dirt, or other foreign matter adheres to it.



1. Rotate and remove eye cup.
2. Clean the picture tube face and lens.
   To prevent scratching, use a soft non abrasive cloth, swab or lens cleaning paper.
3. Fit the projection of the eye cup into the groove in the viewfinder and rotate the eye cup in the direction of the arrow.



1. Rotate and remove eye cup.
2. Clean the picture tube face and lens.
   To prevent scratching, use a soft non abrasive cloth, swab or lens cleaning paper.
3. Align the reference marks and rotate the eye cup in the direction of arrow.

Periodic Maintenance

A precision electromechanical device, the Hitachi VM-H620A/H710A requires maintenance after a period of normal use. We expect that no maintenance other than head cleaning will be required during the period of warranty unless the camcorder is used either heavily or seldom. Defective parts are covered by the warranty. Normal maintenance is the responsibility of the owner. Consult your dealer or local VCR service center for recommendations regarding normal maintenance based on your use patterns, location, and the age of the camcorder.

Troubleshooting

Quality is very important at Hitachi. We inspect and check every camcorder carefully at the factory under the most rigid quality control and inspection systems. If problems develop please check the following possible solutions before inquiring about professional service.

INSERTING OR REMOVING THE CASSETTE

Symptom	Check Point & Correction
Cassette holder cannot be opened when you slide EJECT switch.	• Connect the power source.
Cassette cannot be inserted into cassette compartment.	• Load cassette in direction indicated by arrow on cassette.
	• Cassette window must be toward outside.

CAMERA RECORDING

Symptom	Check Point & Correction
Picture does not appear in the viewfinder.	• Remove the lens cap.
	• Slide the CAM/OFF/VIDEO switch to CAM.
	• Disconnect the AV input cable from the camcorder.
The camcorder cannot go into the recording mode, even when the start/stop button is pressed.	• Check the record-protect tab on the cassette. See page 19 for details.
	• Push the cassette holder embossed PUSH LOCK to close it.
	• Slide the CAM/OFF/VIDEO switch to CAM.

CAMERA RECORDING (Cont'd)

Symptom	Check Point & Correction
Picture is out of focus. Auto-focus does not operate.	• Make sure that FOCUS does not appear in the viewfinder. If it is displayed, press FOCUS Control buttons to erase it.
	• Auto-Focus does not operate if a special-effects filter is attached or the objects shown on page 35 are being recorded.
The created title does not appear.	• Insert the clock battery, then create a title.
	• Do not remove the clock battery after creating a title.

RECORDING TV PROGRAMS OFF THE AIR

Symptom	Check Point & Correction
The camcorder cannot be set to the recording mode, even when the Start/Stop button on the camcorder is pressed.	• Check the record-protect tab on the cassette. See page 19 for details.
	• Set the CAM/OFF/VIDEO switch to CAM.
	• Connect the camcorder and TV or VCR.

PLAYBACK OF PRE-RECORDED CASSETTE

Symptom	Check Point & Correction
"PLAY" button connot be engaged.	• Set the CAM/OFF/VIDEO switch to VIDEO.
No picture appears on television screen when "PLAY" button is pressed. (TV is connected to the camcorder by using RF output adapter.)	• Set the television to the camcorder channel (3or4) depending upon the selected channel in the RF channel select switch of RF output adapter.
Interference on playback picture. (TV is connected to the camcorder by using RF output adapter.)	• When you see the playback picture on your TV, adjust fine tuning knob on television set to obtain best picture.
Picture bends at the top of TV screen.	• TV receiver is of older type. It needs to be modified to work properly with camcorder.
	• Tape is damaged. Try another cassette.
Color of your TV screen is too bright, too faint or change.	• TV set has VIR circuit. Turn it off during playback.
Date search function does not operate.	• Slide the CAM/OFF/VIDEO switch to VIDEO.
	• Insert the clock battery, set the date and time, then start recording.
	• Do not remove the clock battery after recording.
	• Do not eject the recorded cassette. Leave it in the camcorder.
The playback picture moves rapidly and noise appears. Also sound speeded up from normal is heard.	• The camcorder is set to the double speed playback mode. Pressing the playback button to restore the normal playback mode. The sound also returns to the normal speed.
	• Noise appears in the picture during double speed playback, but this does not indecate a fault. See page 31 for details.

BATTERY CONDITION

Symptom	Check Point & Correction
The ( ) indication in the electronic viewfinder flashes to indicate battery is discharged.	• Try another battery or charge the battery.

NO OPERATION IS ACCEPTED

Symptom	Check Point & Correction
Power is turned on, but no button operations are accepted.	• Remove the power source and the date/title battery. And after about one minute, the display in the viewfinder will be reset. Then set the information again.
The camcorder does not operate when alkaline batteries are inserted.	• Check that the polarities (+,–) of the batteries are correct.
	• Insert six batteries.

TAPE DISPLAY

Symptom	Check Point & Correction
TAPE appears in the viewfinder.	• Have you moved the camcorder or cassette from a cold place to a warm place so that its temperature changed abruptly? If the temperature has changed, remove the cassette and set the CAM/OFF/VIDEO switch to OFF, then wait for about one hour.
	• Remove the cassette and then try to reinsert: remove it several times. If the indication is still shown in the viewfinder, use a cleaning tape to clean the heads and replace the cassette.

HITACHI

VM-E220A/E520A
VM-E521A
VM-H620A/H720A

TK № 6601E Image & Information Media Systems Division, Tokai

Printed in Japan (II)

HITACHI

SERVICE MANUAL

SUPPLEMENT

TK | No.6601E-1

VM-E220A/E220A(PX)
VM-E521A

TH MECHANISM

This Service Manual is to supplement the previous manual (No. 6601E) and includes the parts list and exploded views.
Use this together with the manuals listed below.

Manuals related to the VM-E220A/E220A(PX)/E521A

Name of manual	Manual No.	Language
VM-E220A/E520A/ E521A/H620A/H720A	6601E	English
TH Mechanism	6406E	English

CONTENTS

8

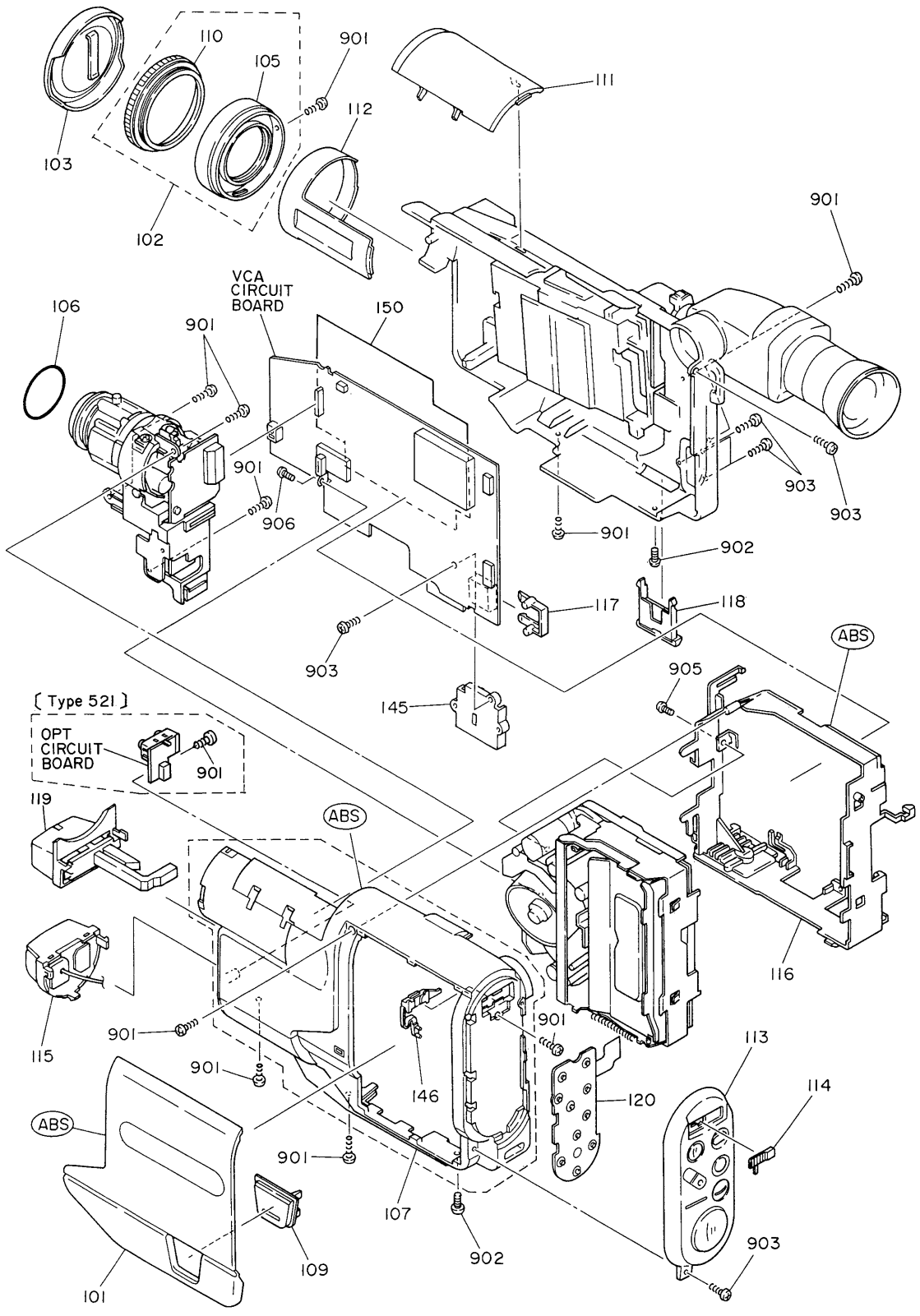
SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

8mm VIDEO CAMERA/RECORDER

May 1996 Image & Information Media Systems Division, Tokai

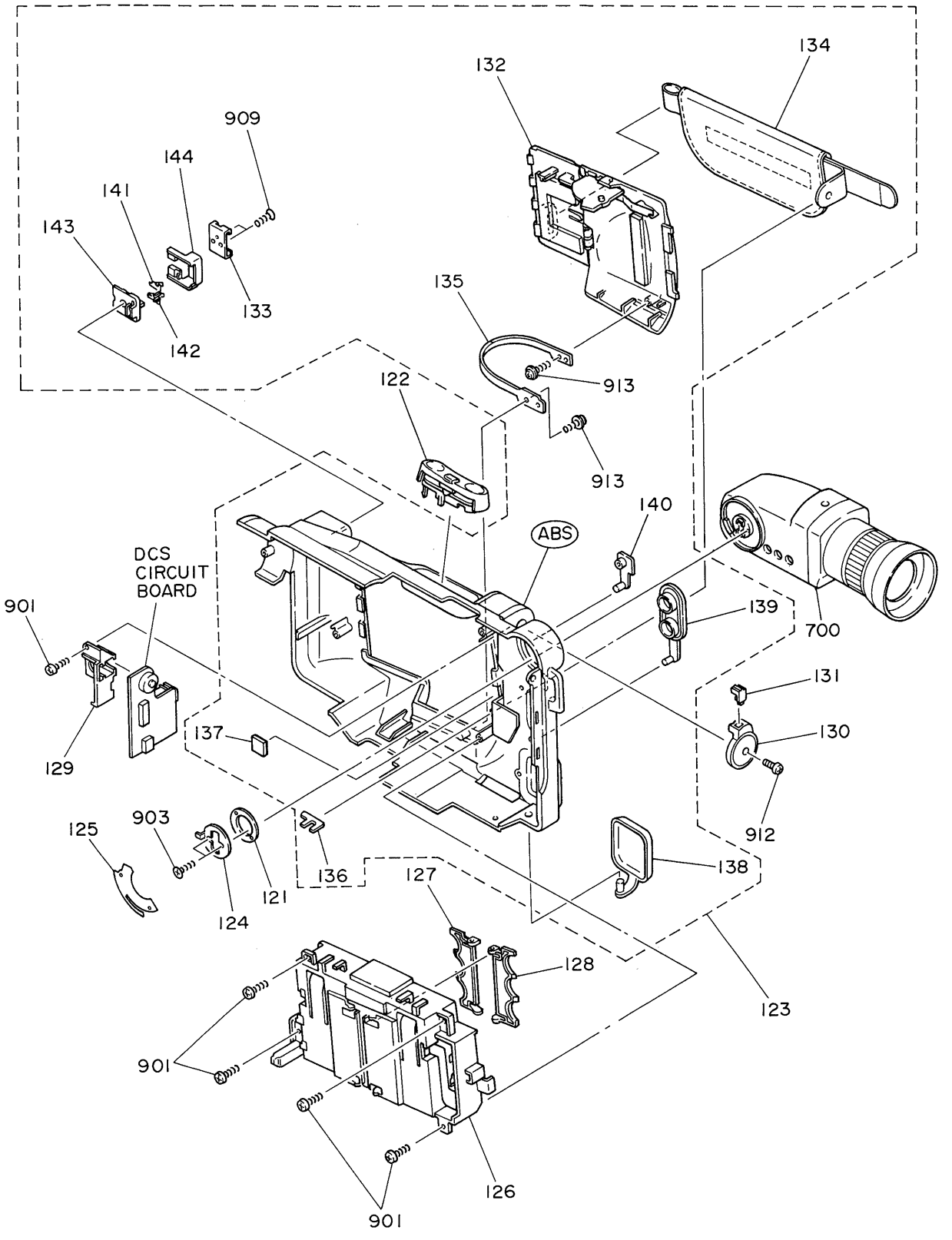
CHAPTER 4 EXPLODED VIEWS

1.CABINET SECTION (I)

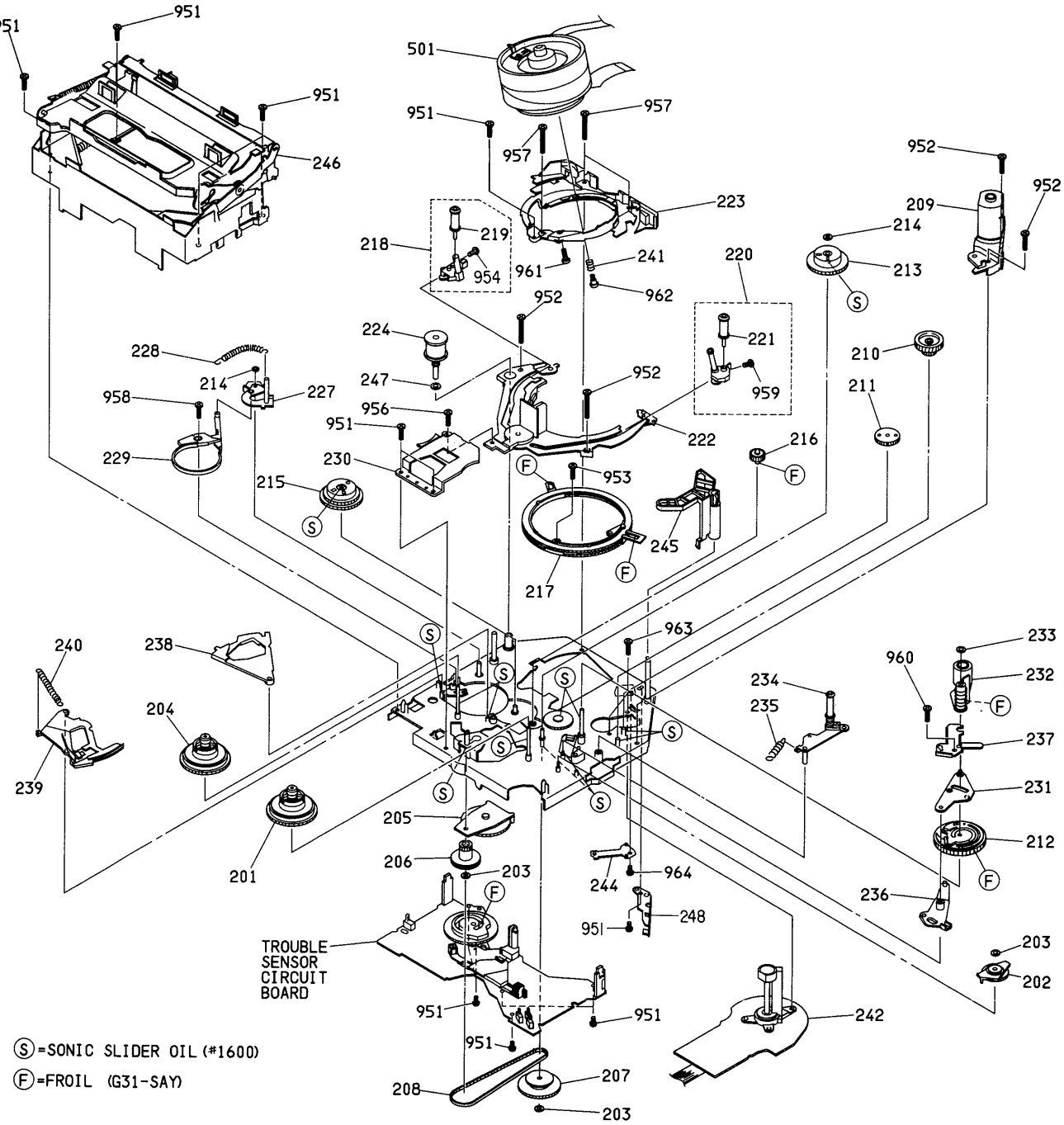


NOTE : The synthetic resin members that can be dismantled are shown by abbreviations using letters.

2. CABINET SECTION (II)

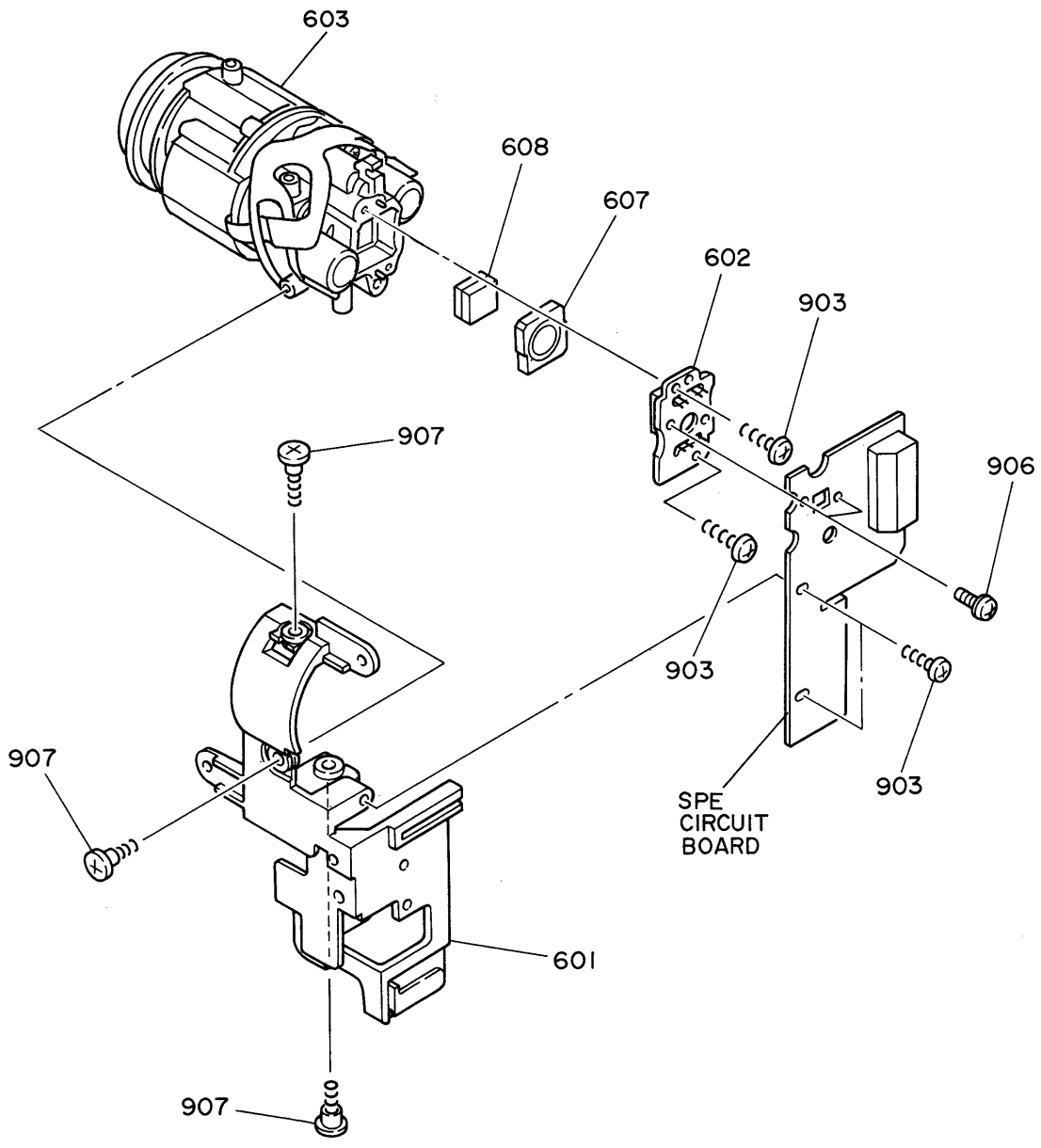


3.CHASSIS SECTION

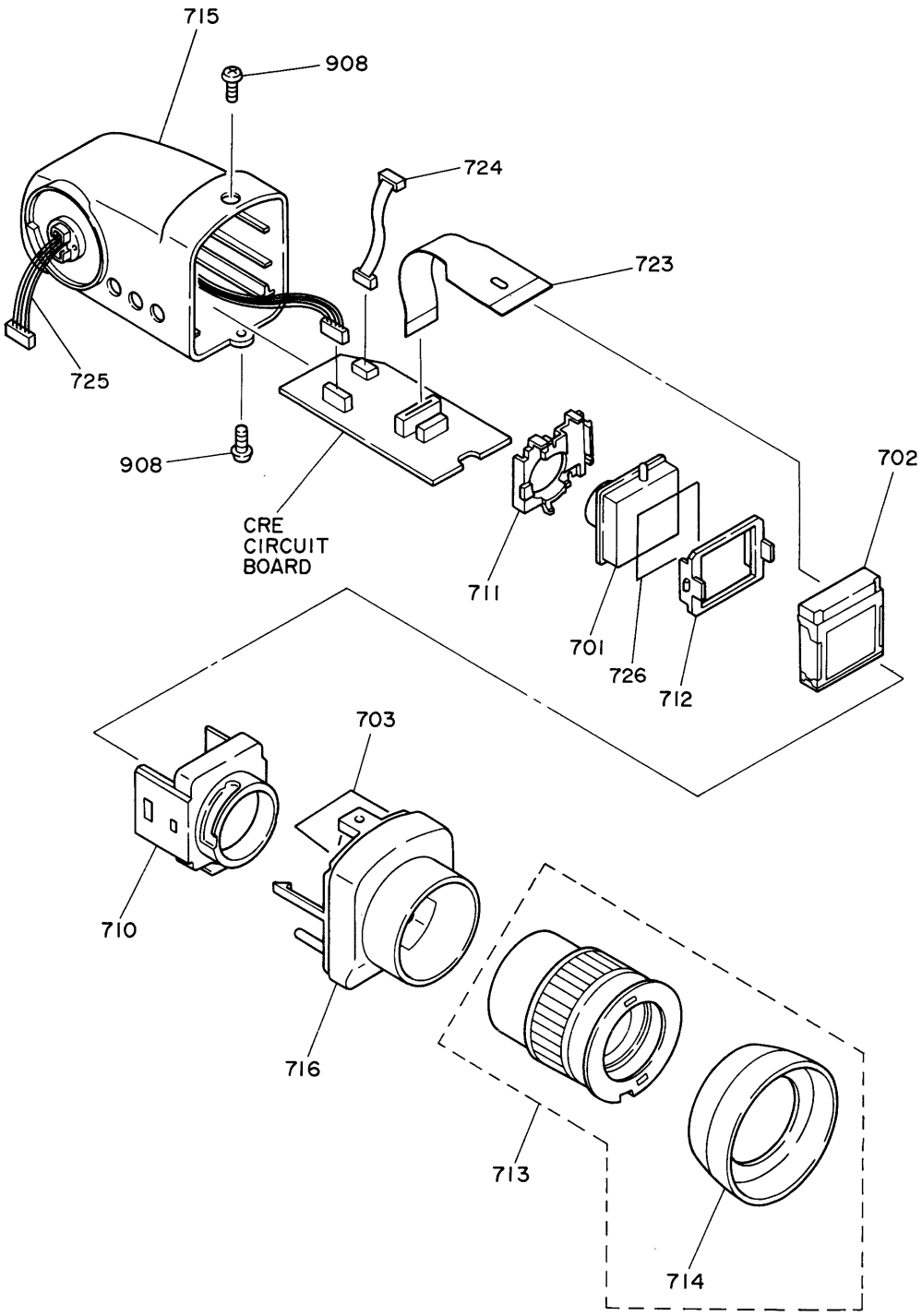


NOTE: If you change the Loading Relay Gears, please use oiler to apply Sonic Slidas oil between ⓐ to ⓑ. If oil is not applied, Loading Relay Gears will be locked.

4.CAMERA BLOCK SECTION



5.ELECTRONIC VIEWFINDER SECTION



CHAPTER 5 REPLACEMENT PARTS LIST

1.MECHANICAL PARTS LIST

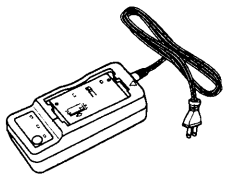
SYMBOL-NO	P-NO	DESCRIPTION
		MECHANISM SECTION
101	QD13911	LID, CASSETTE
101	QD13913	LID, CASSETTE
102	QX10823	RING, LENS
103	4799701	CAP, FOOD
105	QX10833	RING, LENS
106	NX11242	RING
107	QD13441	CASE, SIDE(L)
107	QD13442	CASE, SIDE(L)
109	PC11052	BUTTON, LID
110	QX10177	HOOD, LENS
111	QD11732	COVER, TOP
111	QD11734	COVER, TOP
112	QD11723	COVER, LENS
113	QD11861	COVER, SWITCH
113	QD11865	COVER, SWITCH
114	PC11061	KNOB, EJECT
115	GH10181	MICROPHONE
116	NT10281	FRAME, MECHANISM
117	NJ10411	HOLDER
118	QX10813	CASE, BATTERY
119	QD11701	WINDOW, IR
119	QD13125	WINDOW, IR
120	FH10192	SWITCH ASSY
121	4899872	SPRING
122	5604851	SWITCH, T/W
123	QD11627	CASE, SIDE(R)
124	4826123	STOPPER
125	4345032	SHEET, EVF
126	QD11684	CASE, BATTERY
127	NJ10401	HOLDER, BATTERY(L)
127	NJ10471	HOLDER, BATTERY(R)
128	NJ10401	HOLDER, BATTERY(L)
128	NJ10471	HOLDER, BATTERY(R)
129	NJ10421	HOLDER, JACK
130	PC11081	BOTTON, POWER
131	4752651	KNOB, LOCK
132	QD11971	CAP, BATTERY
133	QX11041	SHOE
134	PV10171	STRAP, HAND
135	NX11531	HINGE
136	MN10831	SHEET
137	MU10651	CUSHION
138	QD11651	COVER, TERMINAL
139	QD11661	COVER, JACK
140	QD11641	COVER, DC
141	KL10491	TERMINAL(L)
142	KL10501	TERMINAL(R)
143	NJ10541	HOLDER, TERMINAL
144	QX11051	COVER, TERMINAL
145	NX11261	HOLDER, BATTERY
146	NJ10431	HOLDER, EJECT
150	QL13002	SHEET, BATTERY
201	6404062	REEL DISK, TAKE-UP
202	6406114	GEAR
203	7787733	WASHER
204	6404073	REEL DISK, SUPPLY
205	6401644	GEAR, IDLER
206	6406211	GEAR
207	6406034	GEAR, PULLEY
208	6358471	BELT
209	KX10622	LOADING MOTOR BLOCK
210	6376312	GEAR, DRIVE
211	6406082	GEAR
212	6406242	GEAR
213	6405834	GEAR (R)
214	7787731	WASHER
215	6405824	GEAR (L)
216	6406131	GEAR
217	4588464	RING, LOADING
218	4589354	BAS, GUIDE ROLLER(I)
219	KX10171	GUIDE ROLLER
220	4589366	BASE, GUIDE ROLLER(O)
221	4588908	ROLLER, GUIDE
221	KX11161	GUIDE ROLLER
222	4587796	PLATE
223	KX10534	BASE, CYLINDER
223	KX10537	BASE, CYLINDER
224	6406156	ROLLER, IMPEDANCE
227	4589012	ARM, TENSION
228	6554231	SPRING
229	4588553	BAND, TENSION
230	6408832	COVER, IDLER
231	NA10601	PLATE
232	4588294	ARM, PRESSURE ROLLER
233	7787571	WASHER
234	4588702	ARM
235	6554201	SPRING
236	KX10731	LEVER
237	4588532	SPRING
238	4588429	PLATE
239	4588353	BRAKE
240	6554221	SPRING
241	6554214	SPRING
242	GP10191	MOTOR, CAPSTAN
244	5794021	BRUSH
245	4588995	COVER
246	KX10761	CASSETTE HOLDER ASSY
247	7789314	WASHER
248	4827262	BRACKET
501	HX10251	CYLINDER ASSY (CY-53CN)
501	HX10253	CYLINDER ASSY (CY-53C3-F)
601	NT10302	FRAME, LENS
602	UE11256	CCD IMAGE SENSOR ASSY
603	KQ10433	LENS ASSY
607	NX11251	RUBBER
608	DT10141	CRYSTAL
700	UX10461	EVF ASSY
701	CS10321	MODULE HTS9554
702	DB10161	LCD
703	MN11221	SPACER
710	QD10584	HOLDER, LCD
711	QD10574	COVER LIGHT
712	QD10612	PIECE
713	4717043	CASE, ADJUST
714	QX11981	CAP, EYE
715	QD11787	CASE, EVF
716	QD12172	CASE, EVF
723	JD10211	FLEXIBLE CONNECTOR
724	5846771	CONNECTOR
725	5844972	CONNECTOR
726	MU10711	SHEET
751	4102531	SCREW
752	QD13291	CASE, LOWER
753	4115381	CORD, POWER
754	QD13941	CASE, UPPER
755	QL12833	SHEET, CLEAR
761	QD13401	CASE, TOP

SYMBOL-NO	P-NO	DESCRIPTION
762	QD13411	CASE, BOTTOM
763	PH13581	PANEL, SMOKE
765	MQ10271	LEG, RUBBER
766	8699308	SCREW (2.6X8) BLACK
767	4115381	CORD, POWER
768	HP10341	MODULE NTS1034
901	7775946	SCREW (2X6)
902	7775963	SCREW(2X3)
903	7775945	SCREW(2X5)
905	7773891	SCREW
906	8650103	SCREW(2X3)
907	MJ10221	SCREW
908	8700968	SCREW(1.7X3.0)
909	8639106	SCREW(2X6)
912	8700970	SCREW(1.7X4.0)
913	MJ10311	SCREW (M2X4.5)
951	8712024	PAN HEAD SCREW-1.4MMDX3MM
952	8700272	SCREW(1.7X5)
953	7775921	SCREW(1.4X2)
954	8714004	SCREW(1.4X2.5)

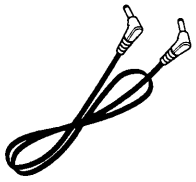
SYMBOL-NO	P-NO	DESCRIPTION
956	8619065	SCREW(1.7X6)
957	8700976	SCREW(1.7X8.0)
958	7770791	SCREW
959	8712904	SCREW(1.4X2.0)
960	8619063	SCREW(1.7X3)
961	8711105	SCREW(2X5)
962	7785886	SCREW
963	8700264	1.7X2 SCREW
964	8741103	SCREW(2X3)
		ACCESSORIES
⚠802	TS11742	AC ADAPTOR (VM-AC85A)
803	EV10411	CORD, PLUG
804	EW10941	CORD
805	5616582	REMOTE HAND SET(VM-RM70A)
807	TS11791	SHOULDER STRAP
808	4798221	STRING, CAP
809	TS12312	INFARARED UNIT (VM-IR20A)

Accessories Supplied

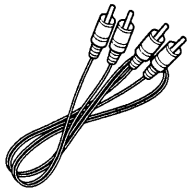
AC ADAPTOR/CHARGER



DC CORD

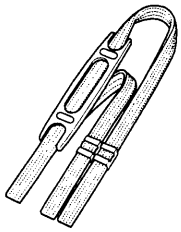


AV OUTPUT CORD



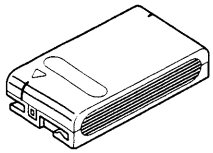
REMOTE CONTROLLER

SHOULDER STRAP

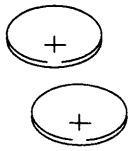


STRING

⚠



⚠



WARNING : Keep this battery away from children. If swallowed consult a physician immediately for emergency treatment.

2.ELECTRICAL PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION
		VCR & CAMERA SECTION
C0001	AD10123R	ELECTROLYTIC 22UF 6.3V
C0002	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0003	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0004	0806153	ELECTROLYTIC 10UF 16V
C0005	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0006	0806153	ELECTROLYTIC 10UF 16V
C0007	0893166	CERAMIC CHIP 220PF+-5% 50V
C0008	0893004	CERAMIC CHIP 0.047UF+-10% 16V
C0009	0806133	ELECTROLYTIC 10UF 6.3V
C0010	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0011	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0012	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0013	0893166	CERAMIC CHIP 220PF+-5% 50V
C0014	0893004	CERAMIC CHIP 0.047UF+-10% 16V
C0015	0806133	ELECTROLYTIC 10UF 6.3V
C0016	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0017	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0018	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0019	0202305	CERAMIC CHIP 510PF+-5% 50V
C0020	0806133	ELECTROLYTIC 10UF 6.3V
C0021	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0022	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0023	0893202	CERAMIC CHIP 330PF+-10% 50V
C0024	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0025	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0026	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0028	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0029	0806157	ELECTROLYTIC 22UF 6.3V
C0051	0893055	CERAMIC CHIP 0.1UF+80-20% 16V
C0101	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0102	0806174	ELECTROLYTIC 100UF 6.3V
C0103	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0104	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0105	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0106	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0108	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0109	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0110	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0111	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0112	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0113	0806001	ELECTROLYTIC 0.1UF 35V
C0114	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0115	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0116	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0117	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0118	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0119	0893119	CERAMIC CHIP 33PF+-5% 50V
C0120	0893122	CERAMIC CHIP 47PF+-5% 50V
C0121	0893121	CERAMIC CHIP 39PF+-5% 50V
C0130	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0131	0806168	ELECTROLYTIC 47UF 6.3V
C0132	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0134	0893123	CERAMIC CHIP 56PF+-5% 50V
C0136	0893118	CERAMIC CHIP 27PF+-5% 50V
C0137	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0140	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0141	0893133	CERAMIC CHIP 330PF+-5% 50V
C0142	0893123	CERAMIC CHIP 56PF+-5% 50V
C0143	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0144	0893214	CERAMIC CHIP 2700PF+-10% 50V
C0145	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0146	0893115	CERAMIC CHIP 15PF+-5% 50V
C0148	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0149	0893117	CERAMIC CHIP 22PF+-5% 50V
C0150	0893114	CERAMIC CHIP 12PF+-5% 50V
C0151	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0152	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0153	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0154	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0155	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0156	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0159	0893109	CERAMIC CHIP 7.0PF 50V
C0163	0806168	ELECTROLYTIC 47UF 6.3V
C0164	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0165	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0168	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0169	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0170	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0171	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0172	0806153	ELECTROLYTIC 10UF 16V
C0173	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0174	0806124	ELECTROLYTIC 10UF 4V
C0175	0893106	CERAMIC CHIP 4.0PF+-0.25% 50V
C0176	0893117	CERAMIC CHIP 22PF+-5% 50V
C0177	0893152	CERAMIC CHIP 18PF+-5% 50V
C0178	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0179	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0180	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0181	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0182	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0183	0806153	ELECTROLYTIC 10UF 16V
C0184	0893055	CERAMIC CHIP 0.1UF+80-20% 16V
C0185	0806023	ELECTROLYTIC 3.3UF 4V
C0187	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0188	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0189	0893161	CERAMIC CHIP 82PF+-5% 50V
C0190	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0191	0893124	CHIP CERAMIC 68PF+-5% 50V
C0204	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0205	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0206	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0207	0893109	CERAMIC CHIP 7.0PF 50V
C0208	0893127	CERAMIC CHIP 120PF+-5% 50V
C0213	0893102	CERAMIC CHIP 1.0PF+-0.25% 50V
C0214	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0215	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0216	0806174	ELECTROLYTIC 100UF 6.3V
C0217	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0218	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0219	0806024	ELECTROLYTIC 3.3UF 6.3V
C0224	0893127	CERAMIC CHIP 120PF+-5% 50V
C0226	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C0227	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0228	0893059	CERAMIC CHIP 0.47UF+80-20% 16V
C0229	0893004	CERAMIC CHIP 0.047UF+-10% 16V
C0230	0893122	CERAMIC CHIP 47PF+-5% 50V
C0231	0806168	ELECTROLYTIC 47UF 6.3V
C0232	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0235	0893124	CHIP CERAMIC 68PF+-5% 50V
C0237	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0238	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0240	0893114	CERAMIC CHIP 12PF+-5% 50V
C0242	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0243	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0244	0806027	ELECTROLYTIC 4.7UF 4V
C0245	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0246	0806124	ELECTROLYTIC 10UF 4V

SYMBOL-NO	P-NO	DESCRIPTION
C0247	0806027	ELECTROLYTIC 4.7UF 4V
C0248	0893115	CERAMIC CHIP 15PF+-5% 50V
C0249	0893119	CERAMIC CHIP 33PF+-5% 50V
C0250	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0251	0806027	ELECTROLYTIC 4.7UF 4V
C0252	0806149	ELECTROLYTIC 4.7UF 25V
C0253	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0254	0806153	ELECTROLYTIC 10UF 16V
C0255	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0256	0893162	CERAMIC CHIP 100PF+-5% 50V
C0257	0806174	ELECTROLYTIC 100UF 6.3V
C0258	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0259	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0260	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0261	0893117	CERAMIC CHIP 22PF+-5% 50V
C0263	0893011	CERAMIC CHIP 0.15UF+-10% 16V
C0264	0893169	CERAMIC CHIP 390PF+-5% 50V
C0265	0893153	CERAMIC CHIP 22PF+-5% 50V
C0270	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0271	0806153	ELECTROLYTIC 10UF 16V
C0273	0806124	ELECTROLYTIC 10UF 4V
C0275	0806174	ELECTROLYTIC 100UF 6.3V
C0352	0806178	ELECTROLYTIC 220UF 4V
C0353	0806124	ELECTROLYTIC 10UF 4V
C0354	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0357	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0358	0806168	ELECTROLYTIC 47UF 6.3V
C0359	0806027	ELECTROLYTIC 4.7UF 4V
C0360	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0363	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0364	0806124	ELECTROLYTIC 10UF 4V
C0365	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0368	0893131	CERAMIC CHIP 220PF+-5% 50V
C0391	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0392	0893079	CERAMIC DISC 0.01UF+80-20% 50V
C0401L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0402L	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C0403L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0404L	0893213	CERAMIC CHIP 2200PF+-10% 50V
C0405L	0893211	CERAMIC CHIP 1500PF+-10% 50V
C0406L	0806163	ELECTROLYTIC 33UF 10V
C0407L	0806018	ELECTROLYTIC 2.2UF 6.3V
C0408L	0806027	ELECTROLYTIC 4.7UF 4V
C0409L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0410L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0411L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0411R	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0412L	0806117	ELECTROLYTIC 3.3UF 16V
C0413	0806018	ELECTROLYTIC 2.2UF 6.3V
C0415L	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0416	0806027	ELECTROLYTIC 4.7UF 4V
C0417L	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0418L	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0419L	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0419L	0893216	CERAMIC CHIP 3900PF+-10% 50V
C0420	0806131	CHIP CAPACITOR 2.2UF+-20% 20V
C0421	0893186	CERAMIC CHIP 0.033UF+-10% 16V
C0422	0806153	ELECTROLYTIC 10UF 16V
C0423	0806153	ELECTROLYTIC 10UF 16V
C0424L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0425	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0426	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C0428	0806168	ELECTROLYTIC 47UF 6.3V
C0430L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0430L	0893091	CERAMIC CHIP 0.022UF+-10% 16V

SYMBOL-NO	P-NO	DESCRIPTION
C0431L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0432	0806131	CHIP CAPACITOR 2.2UF+-20% 20V
C0439	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0441L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0443	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0445	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0457L	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0458	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0459	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0460	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0461	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0501	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0502	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0503	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0551	0893155	CERAMIC CHIP 33PF+-5% 50V
C0552	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0553	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0555	0209942	CERAMIC CHIP 100PF+-5% 50V
C0556	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0557	0806153	ELECTROLYTIC 10UF 16V
C0558	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0559	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0560	0893202	CERAMIC CHIP 330PF+-10% 50V
C0561	0893165	CERAMIC CHIP 180PF+-5% 50V
C0562	0893203	CERAMIC CHIP 390PF+-10% 50V
C0563	0893158	CERAMIC CHIP 56PF+-5% 50V
C0567	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C0570	0206671	ELECTROLYTIC 10UF 10V
C0571	0206671	ELECTROLYTIC 10UF 10V
C0573	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0577	0206671	ELECTROLYTIC 10UF 10V
C0579	0206671	ELECTROLYTIC 10UF 10V
C0581	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0582	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0585	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V
C0586	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0588	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V
C0589	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0590	0806157	ELECTROLYTIC 22UF 6.3V
C0591	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0601	0893205	CERAMIC CHIP 560PF+-10% 50V
C0602	0806149	ELECTROLYTIC 4.7UF 25V
C0603	0893115	CERAMIC CHIP 15PF+-5% 50V
C0604	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0605	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0606	0893204	CERAMIC CHIP 470PF+-10% 50V
C0607	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0608	0893204	CERAMIC CHIP 470PF+-10% 50V
C0609	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0610	0806153	ELECTROLYTIC 10UF 16V
C0612	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0613	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0614	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0615	0893205	CERAMIC CHIP 560PF+-10% 50V
C0616	0893115	CERAMIC CHIP 15PF+-5% 50V
C0617	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0618	0893204	CERAMIC CHIP 470PF+-10% 50V
C0619	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0636	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0638	0893226	CERAMIC CHIP 0.15UF+80-20% 16V
C0639	0806153	ELECTROLYTIC 10UF 16V
C0644	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0645	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0646	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0647	0893184	CERAMIC CHIP 0.022UF+-10% 16V

SYMBOL-NO	P-NO	DESCRIPTION
C0648	0893211	CERAMIC CHIP 1500PF+-10% 50V
C0649	0893211	CERAMIC CHIP 1500PF+-10% 50V
C0650	0893211	CERAMIC CHIP 1500PF+-10% 50V
C0656	0806153	ELECTROLYTIC 10UF 16V
C0671	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0672	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0691	0893206	CERAMIC CHIP 680PF+-10% 50V
C0692	0893202	CERAMIC CHIP 330PF+-10% 50V
C0693	0893199	CERAMIC CHIP 220PF+-10% 50V
C0694	0893191	CERAMIC CHIP 6800PF+-10% 25V
C0695	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0696	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0901	0806174	ELECTROLYTIC 100UF 6.3V
C0902	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0905	0806168	ELECTROLYTIC 47UF 6.3V
C0906	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0907	0806175	ELECTROLYTIC 100UF 10V
C0908	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0909	0806174	ELECTROLYTIC 100UF 6.3V
C0910	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0911	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0915	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0916	0893118	CERAMIC CHIP 27PF+-5% 50V
C0917	0893119	CERAMIC CHIP 33PF+-5% 50V
C0918	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0919	0893119	CERAMIC CHIP 33PF+-5% 50V
C0920	0893126	CERAMIC CHIP 100PF+-5% 50V
C0923	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0924	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0925	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0927	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0928	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0930	0806174	ELECTROLYTIC 100UF 6.3V
C0931	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0932	0806169	ELECTROLYTIC 47UF 16V
C0933	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0934	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0935	0806169	ELECTROLYTIC 47UF 16V
C0936	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0939	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0940	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C1101	0893117	CERAMIC CHIP 22PF+-5% 50V
C1102	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C1103	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C1104	0806018	ELECTROLYTIC 2.2UF 6.3V
C1106	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1107	0806168	ELECTROLYTIC 47UF 6.3V
C1108	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1109	0806169	ELECTROLYTIC 47UF 16V
C1110	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C1111	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1113	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1116	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1117	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1118	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1119	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1120	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1121	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1122	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1124	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1125	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1126	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1127	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1128	0893079	CERAMIC DISC 0.01UF+80-20% 50V
C1129	0893079	CERAMIC DISC 0.01UF+80-20% 50V
C1130	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C1131	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C1133	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1134	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1135	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1136	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1137	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1138	0893117	CERAMIC CHIP 22PF+-5% 50V
C1139	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1141	0806169	ELECTROLYTIC 47UF 16V
C1142	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1143	0806168	ELECTROLYTIC 47UF 6.3V
C1144	0202319	CERAMIC CHIP 22PF+-2% 50V
C1145	0893125	CERAMIC CHIP 82PF+-5% 50V
C1146	0893125	CERAMIC CHIP 82PF+-5% 50V
C1147	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1148	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1149	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1150	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1151	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1152	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1153	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1154	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1156	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1158	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1159	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1160	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1161	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1162	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1163	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1164	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1165	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1166	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1167	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1168	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1169	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1170	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1173	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1174	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1201	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1202	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1203	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1204	0893132	CERAMIC CHIP 270PF+-5% 50V
C1205	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1206	0893007	CERAMIC CHIP 0.082UF+-10% 16V
C1207	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C1208	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C1209	0893133	CERAMIC CHIP 330PF+-5% 50V
C1210	0893133	CERAMIC CHIP 330PF+-5% 50V
C1211	0893133	CERAMIC CHIP 330PF+-5% 50V
C1212	0893055	CERAMIC CHIP 0.1UF+80-20% 16V
C1301	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1302	0893215	CERAMIC CHIP 3300PF+-10% 50V
C1303	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1304	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1305	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1306	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1307	0893215	CERAMIC CHIP 3300PF+-10% 50V
C1308	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1309	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1310	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1311	0806169	ELECTROLYTIC 47UF 16V
C1312	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1313	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1317	0893193	CERAMIC CHIP 0.01UF+-10% 25V

SYMBOL-NO	P-NO	DESCRIPTION
C1318	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1319	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1320	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1401	0806157	ELECTROLYTIC 22UF 6.3V
C1402	0806157	ELECTROLYTIC 22UF 6.3V
C1403	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1404	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1405	0806167	ELECTROLYTIC 47UF 4V
C1406	0806167	ELECTROLYTIC 47UF 4V
C1407	0893209	CERAMIC CHIP 1200PF 50V
C1408	0893209	CERAMIC CHIP 1200PF 50V
C1409	0893209	CERAMIC CHIP 1200PF 50V
C1410	0893209	CERAMIC CHIP 1200PF 50V
C1411	0206647	ELECTROLYTIC 10UF 10V
C1412	0206647	ELECTROLYTIC 10UF 10V
C1413	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1414	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1415	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1416	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1417	0806157	ELECTROLYTIC 22UF 6.3V
C1418	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
R0001	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0005	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0006	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0007	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0008	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0009	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0010	0103930	CHIP RESISTOR 390OHM+-5% 1/8W
R0010	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0011	0103838	RESISTOR CHIP 390OHM+-5% 0.1W
R0011	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0012	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0013	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0014	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0015	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0016	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0017	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0018	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0019	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0020	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0021	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R0022	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0023	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0025	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0026	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0027	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0028	0790027	CHIP RESISTOR 180 OHM+-5% 1/16W
R0029	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0030	0790027	CHIP RESISTOR 180 OHM+-5% 1/16W
R0031	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0032	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0033	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0034	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0035	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0036	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0037	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0040	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0043	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0052	0103813	CHIP RESISTOR 3.3 OHM+-10% 0.1W
R0101	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0102	0790007	CHIP RESISTOR 5.6 OHM+-5% 1/16W
R0103	0790007	CHIP RESISTOR 5.6 OHM+-5% 1/16W
R0104	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0105	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0106	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0107	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0108	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0109	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0110	0790076	CHIP RESISTOR 820KOHM+-5% 1/16W
R0111	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0112	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0113	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0114	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0115	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0116	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0117	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0119	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0120	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0121	0790008	CHIP RESISTOR 6.8 OHM+-5% 1/16W
R0122	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0123	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0124	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0125	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0127	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0128	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0129	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0130	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0132	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0133	0105681	CHIP RESISTOR 2.7KOHM+-1% 1/16W
R0134	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0138	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0141	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0142	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0143	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0144	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0146	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0147	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0148	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0149	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0150	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0152	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0154	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0156	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0157	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0158	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0159	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0160	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R0161	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0164	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0165	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0167	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0168	0790065	CHIP RESISTOR 120KOHM+-5% 1/16W
R0170	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0171	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R0172	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0173	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0174	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0175	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0176	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0180	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R0181	0790063	CHIP RESISTOR 82KOHM+-5% 1/16W
R0182	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0183	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0184	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0185	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0186	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0187	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0188	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0190	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0191	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION
R0192	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R0193	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0194	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0196	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0198	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0199	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0203	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0205	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0208	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0213	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0215	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0216	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0217	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0218	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0219	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0222	0790069	CHIP RESISTOR 0.27MOHM+-5% 1/16W
R0223	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0224	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0225	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0227	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R0228	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0229	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0234	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0236	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0239	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0240	0105702	CHIP RESISTOR 16KOHM+-5% 1/16W
R0241	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0244	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0246	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0250	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0253	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0254	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0261	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0267	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0268	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0273	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0295	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0296	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0298	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0355	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0356	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0357	0105688	CHIP RESISTOR 2.2KOHM+-1% 1/16W
R0358	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0359	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0362	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0364	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0366	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0367	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0371	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R0373	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0374	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0390	0104093	CHIP RESSISTOR 75 OHM+-5% 1/16W
R0391	0104093	CHIP RESSISTOR 75 OHM+-5% 1/16W
R0392	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R0397	0104093	CHIP RESSISTOR 75 OHM+-5% 1/16W
R0401L	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0402L	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0403L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0405	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0408	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0410	0104121	CHIP RESISTOR 27KOHM+-1% 1/10W
R0415	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0417L	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0418L	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0419L	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R0428	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0429L	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0435	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0436L	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0445	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0447	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0460	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R0461L	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0462L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0463L	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0464	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0465	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0466	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0467	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0468	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0469	0790073	CHIP RESISTOR 470KOHM+-5% 1/16W
R0470	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0501	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0502	0103835	CHIP RESISTOR 220 OHM+-5% 0.1W
R0503	0103835	CHIP RESISTOR 220 OHM+-5% 0.1W
R0506	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0507	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0508	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0509	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0551	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0552	0790074	CHIP RESISTOR 560KOHM+-5% 1/16W
R0553	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0558	0105691	CHIP RESISTOR 24KOHM+-1% 1/16W
R0560	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0563	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0564	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0565	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0567	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0570	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0571	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0575	0104297	CHIP RESISTOR 10KOHM+-0.5% 16V
R0577	0104292	CHIP RESISTOR 1.0KOHM+-0.5% 1/16W
R0578	0104301	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0583	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0584	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0586	AQ10271R	CHIP RESISTOR 100 OHM+-0.5% 1/16W
R0588	AQ10272R	CHIP RESISTOR 390 OHM+-0.5% 1/16W
R0591	AQ10274R	CHIP RESISTOR 46.4KOHM+-0.5% 1/16W
R0593	AQ10273R	CHIP RESISTOR 680 OHM+-0.5% 1/16W
R0594	0104301	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0601	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0602	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0603	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0606	0104503	CHIP RESISTOR 27KOHM+-1% 1/16W
R0609	0105706	CHIP RESISTOR 24KOHM+-5% 1/16W
R0610	0105691	CHIP RESISTOR 24KOHM+-1% 1/16W
R0611	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0612	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0613	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0614	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0616	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0619	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0620	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0621	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0622	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0624	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0631	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0632	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0636	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0641	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION
R0642	0105815	CHIP RESISTOR 0.47 OHM+-10% 1/4W
R0661	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0662	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0663	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0671	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0672	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0681	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0682	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0688	0104567	CHIP RESISTER 150KOHM+-0.1% 1/16W
R0689	0105675	CHIP RESISTOR 100KOHM+-1% 1/16W
R0691	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0692	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0693	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0694	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0695	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0696	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0697	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0698	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0699	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0714	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0715	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0718	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0720	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0728	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0729	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0730	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0731	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0737	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0901	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0902	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0903	0790073	CHIP RESISTOR 470KOHM+-5% 1/16W
R0904	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0905	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0906	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0907	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0908	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0909	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0910	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0911	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0912	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0913	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0914	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0915	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0916	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0917	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0918	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0919	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0920	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0921	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0922	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0923	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0924	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0925	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0926	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0929	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0930	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0931	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0932	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0933	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0935	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0937	0104542	CHIP RESISTOR 10KOHM+-1% 1/16W
R0938	0104542	CHIP RESISTOR 10KOHM+-1% 1/16W
R0939	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0940	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0942	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0943	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0944	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0945	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0946	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0949	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0951	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0952	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0957	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0959	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0962	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0963	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0964	0104562	CHIP RESISTOR 39KOHM+-1% 1/16W
R0965	0104503	CHIP RESISTOR 27KOHM+-1% 1/16W
R0966	0104563	CHIP RESISTOR 47KOHM+-1% 1/16W
R0967	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0968	0104562	CHIP RESISTOR 39KOHM+-1% 1/16W
R0969	0104503	CHIP RESISTOR 27KOHM+-1% 1/16W
R0970	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0971	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0972	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0973	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0974	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0975	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0977	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0978	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0979	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0980	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0981	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0982	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0983	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0984	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0985	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0986	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0987	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0988	0790063	CHIP RESISTOR 82KOHM+-5% 1/16W
R0989	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0990	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0991	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0994	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R1102	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1103	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1104	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1105	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1106	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1107	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R1108	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R1109	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R1110	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R1113	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1114	0104571	CHIP RESISTOR 3.9KOHM+-1% 1/16W
R1116	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R1117	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R1118	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R1119	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1120	0104545	CHIP RESISTOR 1.24KOHM+-1% 1/16W
R1121	0104558	CHIP RESISTOR 5.6KOHM+-1% 1/16W
R1122	0104563	CHIP RESISTOR 47KOHM+-1% 1/16W
R1123	0104554	CHIP RESISTOR 1KOHM+-1% 1/16W
R1124	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1125	0104558	CHIP RESISTOR 5.6KOHM+-1% 1/16W
R1126	0104573	CHIP RESISTOR 1.2KOHM+-1% 1/16W
R1130	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1131	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R1132	0104534	CHIP RESISTOR 1.8KOHM+-1% 1/16W
R1133	0104558	CHIP RESISTOR 5.6KOHM+-1% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION
R1134	0104502	CHIP RESISTOR 820 OHM+-1% 1/16W
R1135	0104553	CHIP RESISTOR 15KOHM+-1% 1/16W
R1139	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1140	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1141	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R1142	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R1143	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1146	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1147	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1148	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1149	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1150	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1151	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1152	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1153	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R1158	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1159	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1162	0103841	CHIP RESISTOR 680 OHM+-5% 0.1W
R1164	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R1171	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R1172	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1201	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R1202	0790069	CHIP RESISTOR 0.27MOHM+-5% 1/16W
R1203	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1204	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1205	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1206	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1207	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1208	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1209	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1210	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1211	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1212	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1213	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1214	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1215	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1216	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1217	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1218	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1220	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R1221	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R1222	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1224	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R1301	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1302	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1303	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1304	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1306	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W
R1308	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1309	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1310	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W
R1313	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W
R1315	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1316	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1317	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W
R1322	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R1323	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R1330	0104579	CHIP RESISTOR 12KOHM+-1% 1/16W
R1331	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1332	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1335	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1336	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1401	0103821	CHIP RESISTOR 15 OHM+-5% 0.1W
R1402	0103821	CHIP RESISTOR 15 OHM+-5% 0.1W
R1403	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R1404	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R1405	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R1406	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R1407	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1408	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1409	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1410	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1411	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R1412	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R1413	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1414	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1416	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
RT0001	5040202	SEMI VARIABLE 2.2KOHM
RT0002	5040202	SEMI VARIABLE 2.2KOHM
RT0003	5040204	SEMI VARIABLE 10KOHM
RT0004	5040204	SEMI VARIABLE 10KOHM
RT0005	5040202	SEMI VARIABLE 2.2KOHM
RT0103	5040201	VARIABLE RESISTOR 470 OHM
RT0203	5040205	VARIABLE RESISTOR 4.7KOHM
RT0204	0104731	CHIP RESISTOR 5.6KOHM+-10% 1/16W
RT0205	5040204	VARIABLE RESISTOR 10KOHM
RT0206	0104159	CHIP RESISTER 1.5KOHM+-10% 1/8W
RT0207	5040205	VARIABLE RESISTOR 4.7KOHM
RT0209	5040205	VARIABLE RESISTOR 4.7KOHM
RT0210	5040201	VARIABLE RESISTOR 470 OHM
RT0211	0104159	CHIP RESISTER 1.5KOHM+-10% 1/8W
RT0212	5040202	SEMI VARIABLE 2.2KOHM
RT0215	5040204	VARIABLE RESISTOR 10KOHM
RT0216	0104731	CHIP RESISTOR 5.6KOHM+-10% 1/16W
D0001	5337422	DIODE DA221
D0001	CH10451	DIODE GL453J
D0051	CH10521	DIODE DNF318U-1
D0052	CH10521	DIODE DNF318U-1
D0101	5337422	DIODE DA221
D0352	5337351	DIODE MA132WK
D0394	5337422	DIODE DA221
D0401	5337422	DIODE DA221
D0551	5337372	DIODE SB07-03C
D0554	5337352	DIODE MA132WA
D0556	5326021	DIODE MA160-MID
D0601	CC10291R	DIODE 1SS353
D0901	CC10291R	DIODE 1SS353
D0902	CC10291R	DIODE 1SS353
D0905	CC10291R	DIODE 1SS353
D1101	5337372	DIODE SB07-03C
D1102	CC10291R	DIODE 1SS353
D1103	5328305	DIODE MA151WA
D1104	5382911	DIDOE LT1D82A
D1303	5337422	DIODE DA221
D1403	5328305	DIODE MA151WA
IC0001	CK13391R	IC AN2001SB
IC0101	1366631	IC HA118189MP
IC0102	CK13461R	IC UPC5023GS-101-E1
IC0201	1366901	IC HA118372F
IC0202	CK12041R	IC CXL5516N
IC0203	1352331	IC CXL5507M
IC0204	CK13471R	IC UPC5023GS-104-E1
IC0401	CK12231	IC HA118193F
IC0551	1366251	IC TL1464IPT
IC0601	CK12151R	IC UPC5023GS-079-E1
IC0631	CK14251R	IC LB1888V
IC0671	1366651	IC BA6417F
IC0901	CK12177U	IC CXP87240A-107Q
IC0902	1352582	IC S-84206F
IC0903	1366081	IC HD74HCT125T

SYMBOL-NO	P-NO	DESCRIPTION
IC0904	1366612	IC XLU5949AFS
IC0907	CJ10201	TRANSISTOR GP1U261X
IC1101	1366681	IC HA118184F
IC1102	1365392	IC HD49319AF
IC1103	CK12132U	IC HG51CS035TEA
IC1104	CK12061R	IC UPD16510GR
IC1106	CK13801U	IC HD6433042T13F
IC1107	CK14171R	IC MX25S67MR
IC1201	CK13791R	IC UPC5023GS-105-E1
IC1301	1366804	IC MPC17AT85VMEL
IC1302	1366804	IC MPC17AT85VMEL
IC1401	FU10171	GYRO SENSOR ENC-05EA-02
IC1402	FU10172	GYRO SENSOR ENC-05EB-02
IC1403	CK11721R	IC NJU7032M
IC1404	1359931	IC TC4W66F
Q0001	1322341	TRANSISTOR PT4810F
Q0001	1323301	TRANSISTOR 2SB1219
Q0002	5327521	PHOTO TRANSISTOR SPI-315-C
Q0003	1323252	TRANSISTOR XP4501
Q0003	5327521	PHOTO TRANSISTOR SPI-315-C
Q0004	1322341	TRANSISTOR PT4810F
Q0004	1323252	TRANSISTOR XP4501
Q0005	1323252	TRANSISTOR XP4501
Q0051	CA10691R	TRANSISTOR 2SD1366A
Q0101	1323301	TRANSISTOR 2SB1219
Q0102	1323231	TRANSISTOR 2SB1462
Q0103	1323231	TRANSISTOR 2SB1462
Q0104	1323181	TRANSISTOR XP4213
Q0105	1323301	TRANSISTOR 2SB1219
Q0107	1323231	TRANSISTOR 2SB1462
Q0108	1323271	TRANSISTOR DTC144EE
Q0109	1323231	TRANSISTOR 2SB1462
Q0110	5326471	TRANSISTOR 2SB1218 (R)
Q0112	1323321	TRANSISTOR 2SD2216
Q0117	1323173	TRANSISTOR UN9212
Q0120	5326454	TRANSISTOR DTA124EU
Q0123	1323321	TRANSISTOR 2SD2216
Q0170	1323301	TRANSISTOR 2SB1219
Q0171	1323253	TRANSISTOR XP4401
Q0173	1323253	TRANSISTOR XP4401
Q0175	1323321	TRANSISTOR 2SD2216
Q0176	1323231	TRANSISTOR 2SB1462
Q0210	1323321	TRANSISTOR 2SD2216
Q0216	1323173	TRANSISTOR UN9212
Q0217	1323271	TRANSISTOR DTC144EE
Q0218	1323271	TRANSISTOR DTC144EE
Q0225	1323231	TRANSISTOR 2SB1462
Q0226	1323271	TRANSISTOR DTC144EE
Q0350	1323321	TRANSISTOR 2SD2216
Q0352	1323231	TRANSISTOR 2SB1462
Q0353	1323361	TRANSISTOR XP1501
Q0356	1323321	TRANSISTOR 2SD2216
Q0390	1323271	TRANSISTOR DTC144EE
Q0401L	1323171	TRANSISTOR UN9213
Q0403L	1323321	TRANSISTOR 2SD2216
Q0404	1323321	TRANSISTOR 2SD2216
Q0407	1323171	TRANSISTOR UN9213
Q0408L	1323361	TRANSISTOR XP1501
Q0409	1323321	TRANSISTOR 2SD2216
Q0410	1323321	TRANSISTOR 2SD2216
Q0501	5326513	TRANSISTOR 2SB1188 (R)
Q0502	1323321	TRANSISTOR 2SD2216
Q0551	CA10271R	TRANSISTOR 2SB1424
Q0553	1308011	TRANSISTOR MPL1
Q0554	5326502	TRANSISTOR 2SD1766 (R)
Q0556	CA10271R	TRANSISTOR 2SB1424
Q0557	1323321	TRANSISTOR 2SD2216
Q0602	1323321	TRANSISTOR 2SD2216
Q0691	1323321	TRANSISTOR 2SD2216
Q0692	CA10271R	TRANSISTOR 2SB1424
Q0901	1323251	TRANSISTOR XP4601
Q0903	1323081	TRANSISTOR 2SA1036K
Q0904	1323231	TRANSISTOR 2SB1462
Q0905	1323321	TRANSISTOR 2SD2216
Q0908	1323271	TRANSISTOR DTC144EE
Q1101	CA10583R	TRANSISTOR 2SB709A
Q1103	5328192	TRANSISTOR 2SC2462LD
Q1104	CA10583R	TRANSISTOR 2SB709A
Q1105	CA10583R	TRANSISTOR 2SB709A
Q1106	CA10583R	TRANSISTOR 2SB709A
Q1107	5328192	TRANSISTOR 2SC2462LD
Q1109	1323271	TRANSISTOR DTC144EE
Q1110	5328192	TRANSISTOR 2SC2462LD
Q1201	5328192	TRANSISTOR 2SC2462LD
Q1202	1323141	TRANSISTOR 2SC2411K
Q1401	1323271	TRANSISTOR DTC144EE
⚠T0551	5148333	TRANSFORMER, POWER
L0001	0773003	COIL 47UH
L0002	0773002	COIL 22UH
L0003	0773119	CHOKE COIL 12UH+-5%
L0101	0773003	COIL 47UH
L0102	0773094	CHOKE COIL 100UH+-10%
L0103	0773124	CHOKE COIL 27UH+-5%
L0104	0773003	COIL 47UH
L0105	0773117	CHOKE COIL 8.2UH+-5%
L0107	0773134	CHOKE COIL 150UH+-5%
L0108	0773135	CHOKE COIL 180UH+-5%
L0109	5129255	COIL 470UH
L0110	0773124	CHOKE COIL 27UH+-5%
L0111	5129256	COIL 33UH
L0170	0773091	CHOKE COIL 33UH
L0171	0773091	CHOKE COIL 33UH
L0172	0773129	CHOKE COIL 68UH+-5%
L0203	0773118	CHOKE COIL 10UH+-5%
L0204	0773133	CHOKE COIL 120UH+-5%
L0206	0773088	CHOKE COIL 15UH
L0350	0773003	COIL 47UH
L0401	0773003	COIL 47UH
L0552	BA10127R	COIL 10UH
L0553	BA10128R	COIL 22UH
L0554	BA10135R	COIL 10UH
L0556	BA10127R	COIL 10UH
L0558	BA10129R	COIL 47UH
L0560	0773001	CHOCE COIL 10UH+-10%
L0561	0773004	COIL 100UH
L0562	0773004	COIL 100UH
L0601	0773087	CHOKE COIL 10UH+-10%
L0901	0773004	COIL 100UH
L0902	0773121	CHOKE COIL 15UH+-5%
L1101	0773003	COIL 47UH
L1102	0773003	COIL 47UH
L1103	0773001	CHOCE COIL 10UH+-10%
L1106	0773094	CHOKE COIL 100UH+-10%
L1109	0773001	CHOCE COIL 10UH+-10%
L1110	0773001	CHOCE COIL 10UH+-10%
L1301	0773001	CHOCE COIL 10UH+-10%
L1302	0773001	CHOCE COIL 10UH+-10%
X0201	1930211	CRYSTAL
X0901	1930171	CRYSTAL
X0902	BL10311R	CRYSTAL

SYMBOL-NO	P-NO	DESCRIPTION
X1101	1930094	CRYSTAL
BL0501	BV10201R	CHOKE COIL
CN0001	5845867	CONNECTOR
CN0502	5847081	CONNECTOR
CN0503	5845861	CONNECTOR
CN0901	1880371	CONNECTOR
CP0202	BE10231R	LC FILTER
CP0203	BE10341R	FILTER, BAND PASS
CP0204	BE10343R	FILTER, BAND PASS
CP1101	5172675	FILTER, LOW PASS
⚠F0501	5723232	FUSE 2A
⚠F0502	5723231	FUSE 1.6A
JK0200	5695291	SOCKT
JK0201	ES10242	JACK, AV
JK0501	5693601	DC JACK
PG0001	5666921	MINI PLUG
PG0001	5668672	PLUG
PG0051	5668672	PLUG
PG0101	EA10501R	PLUG
PG0401L	5668671	MINI PLUG
PG0501	1830322	PLUG
PG0502	5668671	MINI PLUG
PG0503	5668675	PLUG
PG0551	5669037	MINI PLUG
PG0601	5692362	MINI PLUG
PG0602	EA10641R	PLUG
PG0603	5668753	MINI PLUG
PG0604	5668671	MINI PLUG
PG0901	5668572	MINI PLUG
PG0902	5668752	MINI PLUG
PG0903	5669194	PLUG
PG1101	1830343	PLUG
PG1102	1830351	PLUG
PG1301	EA10407R	CONNECTOR
⚠QF1301	FM10112R	FUSE 0.2A
S0003	5636171	SWITCH
S0004	5636171	SWITCH
S0005	5636171	SWITCH
S0006	5635331	SWITCH
S0007	5613523	SWITCH
S0501	FD10201	SWITCH
S0502	FE10151	SWITCH
S0902	FH10192	SWITCH ASSY
SW0901	1742012	SWITCH

		B/W EVF[EMQ]SECTION
C1002	0806169	ELECTROLYTIC 47UF 16V
C1003	0893044	CERAMIC CHIP 0.01UF+-10% 50V
C1004	0893234	CERAMIC CHIP 1500PF+80-20% 50V
C1005	0806163	ELECTROLYTIC 33UF 10V
C1006	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1007	0893113	CERAMIC CHIP 10PF+-0.5% 50V
R1001	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R1002	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1003	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1004	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1009	0103823	CHIP RESISTOR 220HM+-5% 0.1W
D1001	CC10291R	DIODE 1SS353
IC1001	UE11256	CCD IMAGE SENSOR ASSY
Q1001	5328221	TRANSISTOR 2SC2620-QC
PG1001	1830344	PLUG
C2102	0893062	CERAMIC CHIP 1UF+80-20% 16V
C2104	0893062	CERAMIC CHIP 1UF+80-20% 16V
C2105	0893191	CERAMIC CHIP 6800PF+-10% 25V
C2106	0893062	CERAMIC CHIP 1UF+80-20% 16V
C2108	0806153	ELECTROLYTIC 10UF 16V
C2110	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2113	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C2114	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2119	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C2120	0893059	CERAMIC CHIP 0.47UF+80-20% 16V
C2121	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2122	0893231	CERAMIC CHIP 0.068UF+80-20% 25V
C2123	0893231	CERAMIC CHIP 0.068UF+80-20% 25V
C2124	0893231	CERAMIC CHIP 0.068UF+80-20% 25V
C2136	0893062	CERAMIC CHIP 1UF+80-20% 16V
C2137	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C2138	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C2141	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2181	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C2182	0806158	ELECTROLYTIC 22UF 16V
C2183	0806174	ELECTROLYTIC 100UF 6.3V
C2184	0806149	ELECTROLYTIC 4.7UF 25V
C2185	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C2187	0806153	ELECTROLYTIC 10UF 16V
C2203	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2204	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C2205	0893175	CERAMIC CHIP 1000PF+-5% 50V
C2207	0893175	CERAMIC CHIP 1000PF+-5% 50V
C2211	0206673	ELECTROLYTIC 33UF 6.3V
C2212	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2213	0893175	CERAMIC CHIP 1000PF+-5% 50V
C2214	0893127	CERAMIC CHIP 120PF+-5% 50V
C2215	0893217	CERAMIC CHIP 4700PF+-10% 50V
C2216	0806019	ELECTROLYTIC 2.2UF 10V
C2217	0202025	CERAMIC DISC 4700PF+-5% 50V
C2218	0806149	ELECTROLYTIC 4.7UF 25V
C2219	0893154	CERAMIC CHIP 27PF+-5% 50V
C2220	0893154	CERAMIC CHIP 27PF+-5% 50V
C2221	0893154	CERAMIC CHIP 27PF+-5% 50V
C2222	0893154	CERAMIC CHIP 27PF+-5% 50V
C2223	0893154	CERAMIC CHIP 27PF+-5% 50V
C2224	0893154	CERAMIC CHIP 27PF+-5% 50V
C2225	0893154	CERAMIC CHIP 27PF+-5% 50V
C2226	0893154	CERAMIC CHIP 27PF+-5% 50V
C2227	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
R2101	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R2102	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R2103	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R2104	0105203	CHIP RESISTOR 18KOHM+-0.5% 1/16W
R2105	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R2106	0790065	CHIP RESISTOR 120KOHM+-5% 1/16W
R2107	0790065	CHIP RESISTOR 120KOHM+-5% 1/16W
R2108	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R2109	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R2110	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R2111	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R2112	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R2113	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R2115	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R2118	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R2119	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R2120	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R2121	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R2122	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R2125	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R2126	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R2128	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R2129	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION
R2139	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R2140	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R2142	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R2143	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R2148	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R2151	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R2153	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R2154	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R2181	0105593	CHIP RESISTOR 680 OHM+-5% 1/2W
R2182	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R2184	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R2202	0105697	CHIP RESISTOR 390KOHM+-1% 1/16W
R2203	0105197	CHIP RESISTOR 22KOHM+-0.5% 1/16W
R2204	0105202	CHIP RESISTOR 39KOHM+-0.5% 1/16W
R2207	0104514	CHIP RESISTOR 1.96KOHM+-1% 1/16W
R2208	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R2209	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R2210	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R2211	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R2212	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R2213	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R2215	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R2216	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R2217	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
RT2101	AW10168	TIMMER RESISTOR
RT2102	AW10168	TIMMER RESISTOR
RT2103	AW10168	TIMMER RESISTOR
RT2104	5040107	SEMI VARIABLE 10KOHM
RT2105	5040106	SEMI VARIABLE 4.7KOHM
RT2106	5040106	SEMI VARIABLE 4.7KOHM
RT2181	5040106	SEMI VARIABLE 4.7KOHM
RT2201	5040108	SEMI VARIABLE
D2101	5337354	DIODE MA133
D2102	5337354	DIODE MA133
D2103	5337354	DIODE MA133
D2201	5337031	DIODE 1SV201
D2202	5337353	DIODE MA132K
IC2101	CK10522U	IC IR3Y18A
IC2181	CK11961R	IC NJM431U
IC2202	1366341	IC ETM3030TOA
L2181	0773094	CHOKE COIL 100UH+-10%
L2182	0773094	CHOKE COIL 100UH+-10%
L2203	BA10131R	COIL 220UH
L2204	0773121	CHOKE COIL 15UH+-5%
X2101	BL10111R	CRYSTAL
BL2201	CS10321	MODULE HTS9554
CN2201	JD10211	FLEXIBLE CONNECTOR
CN2202	5844972	CONNECTOR
CN2203	5846771	CONNECTOR
CP2101	5172474	TRAP,COIL
LC2201	DB10161	LCD
PG2102	1830022	PLUG
PG2104	1830022	PLUG
PG2201	EA10348R	CONNECTOR
PG2203	1830191	PLUG
D 1	5336552	DIODE S1WBA60
D 2	4113091	DIODE AU01A
D 3	4112631	DIODE ERB44-08

SYMBOL-NO	P-NO	DESCRIPTION

HITACHI

VM-E220A/E220A(PX)/E521A

VM-E220A
VM-E220A(PX)
VM-E521A

TK №.6601E-1 Image & Information Media Systems Division, Tokai

Printed in Japan (III)

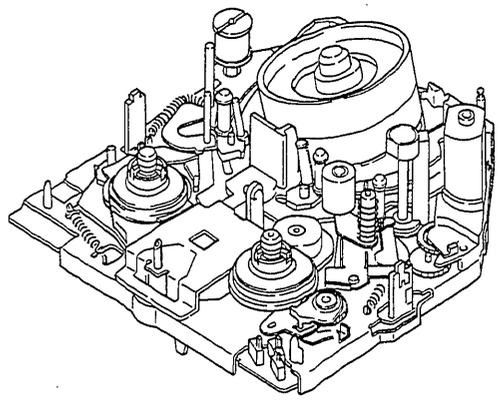
HITACHI

SERVICE MANUAL

TK | No.6406E

TH MECHANISM

Disassembly & Adjustment



Hi 8

Note

This manual applies to new 8mm video camera/recorders (TH Mechanism) issued on May, 1994 and later.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

8mm VIDEO CAMERA/RECORDER

May 1994 TOKAI Consumer Electronics Division

ENGLISH

CONTENTS

UNLOADING METHOD

The method to set the unassembled mechanism to the unloading state is described here.

1. When the loading motor is normal (Fig. 1)

<Procedure>
1)Set the power supply to 3-5V DC. (Do not apply more than 5V as this could result in a secondary defect.)
2)Connect the red wire to the positive terminal and brown wire to the negative terminal to activate unloading.

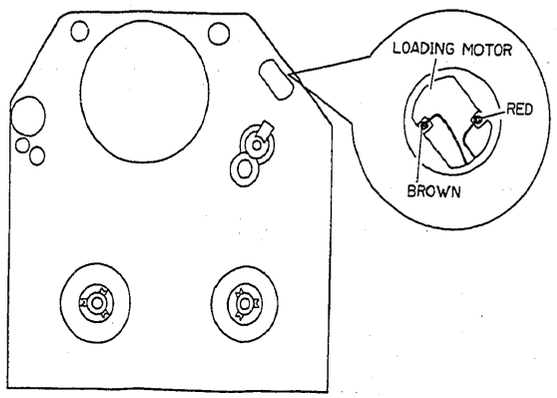


Fig. 1

2. When the loading motor is faulty (Fig. 2)

<Procedure>
1)Remove the loading motor.
2)Turn the cam gear shown in Fig.2 with your hand in the direction of arrow (A).

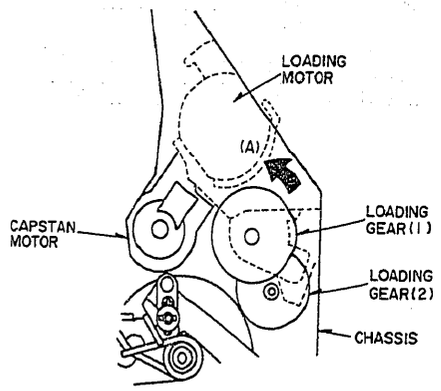


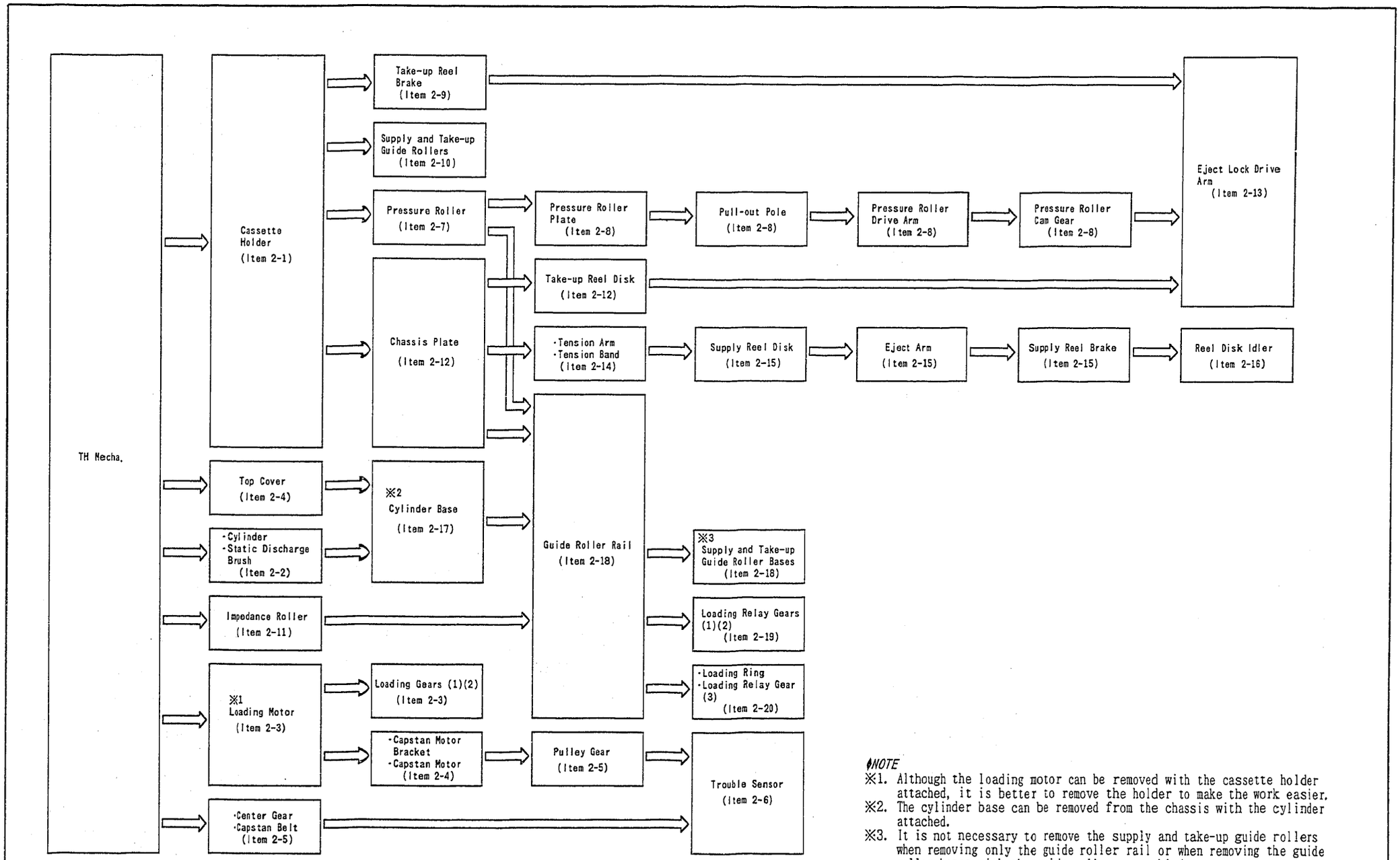
Fig. 2

ENGLISH

DISASSEMBLY METHOD

Refer to the following "Parts hierarchy chart" first when replacing defective parts.
This chart showns the parts removal procedure as the hierarchy in which parts should be replaced.

[How to use the parts hierarchy chart]
1) Search for the part to be replaced in chart.
2) Check the part in the rank above the part to be replaced and the start dismantling.
3) Replace the defective part and install it by the reverse order to that shown in the hierarchy chart.
4) In the following text, remove the part in the order of letters (A,B,C...) shown in the illustations.



NOTE
※1. Although the loading motor can be removed with the cassette holder attached, it is better to remove the holder to make the work easier.
※2. The cylinder base can be removed from the chassis with the cylinder attached.
※3. It is not necessary to remove the supply and take-up guide rollers when removing only the guide roller rail or when removing the guide roller bases with the guide rollers assembled.

1. IDENTIFICATIONS OF MAJOR MECHANICAL COMPONENTS

Numbers in ( ) show the numbers of item that describe how to remove the components.

1-1. Top View

1. Cylinder (2-2)
2. Capstan Motor (2-4, 5)
3. Loading Motor (2-3)
4. Pull-out Pole (2-8)
5. Loading Gear (1) (2-3)
6. Loading Gear (2) (2-3)
7. Pressure Roller Cam Gear (2-8)
8. Pressure Roller (2-7)
9. Loading Relay Gear (1) (2-18)
10. Take-up Reel Brake (2-9)
11. Eject Lock Drive Arm (2-13)
12. Take-up Reel Disk (2-12)
13. Reel Drive Idler (2-15)
14. Take-up Guide Roller (2-10)
15. Loading Relay Gear (3) (2-19)
16. Supply Reel Disk (2-15)
17. Supply Reel Brake (2-15)
18. Tension Band Holder (Tension Band) (2-14)
19. Eject Arm (2-15)
20. Tension Spring (2-14)
21. Tension Arm (2-14)
22. Supply Guide Roller (2-10)
23. Impedance Roller (2-11)

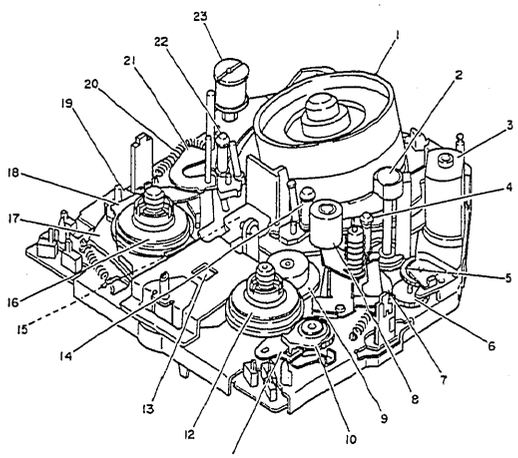


Fig. 1-1

1-2. Bottom View

1. Capstan Motor (2-4)
2. Capstan Motor Bracket (2-4)
3. Pulley Gear (2-5)
4. Static Discharge Brush (2-2)
5. Trouble Sensor Circuit Board (2-6)
   - End LED
   - Supply and Take-up END Sensors
   - Supply and Take-up Reel Sensors
   - Safty Tab Switch
   - Tape Select Switch
   - Hi-8 Switch (For Hi-8 model)
   - Cassette Holder Switch
   - Mechanism State Switch
6. Capstan Belt (2-5)
7. Center Gear (2-5)

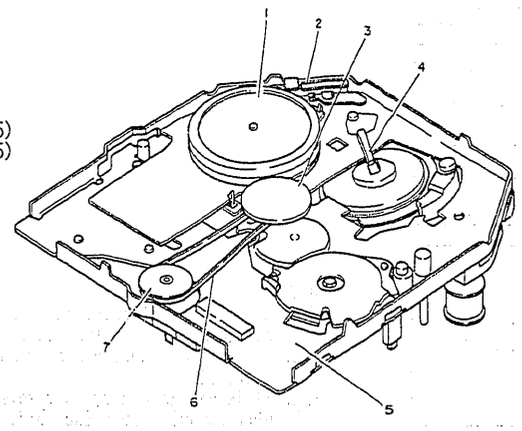


Fig. 1-2

2. TAPE TRANSPORT MECHANISM DISASSEMBLY

- Before Reinstalling the Disassembly -

- Set the camera/recorder to the unloading stop state.

2-1. Cassette holder (Fig. 2-1)

1) Move the eject lever in the direction of arrow (A) and set the unit to the eject state.

◆Caution when reinstalling

- Reinstall the cassette holder so that section (B) of the eject lock slider is inserted into section (C) of the eject lock arm.

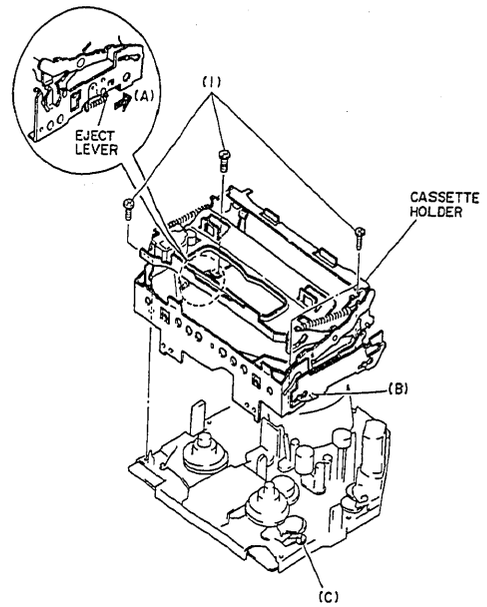


Fig. 2-1

2-2. Static discharge brush, cylinder (Fig. 2-2)

1) Remove screw (1) holding the static discharge brush.
2) Remove two screws (2) holding the cylinder.
3) Remove the cylinder in the direction of arrow (A).

◆Cautions during work

- Take care as the spring is removed on its own when screw (B) holding the cylinder is removed.
- Do not touch video head tips with your fingers or tools, etc. during work.

◆Adjustment after reinstalling

- After reinstalling the cylinder, be sure to perform the following adjustment.

「4. ADJUSTMENT AFTER REPLACING CYLINDER」 in chapter 2

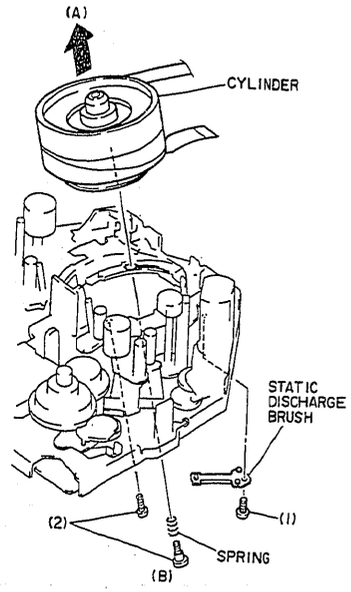


Fig. 2-2

2-3. Loading motor, loading gears (1)(2) (Fig. 2-3)

1) Remove two screws (1) holding the loading motor.
2) Remove the loading motor and loading gears (1) and (2) from chassis in the direction of arrow (A).

Adjustment after reinstalling

- After reinstalling the loading motor and loading gears (1)(2), be sure to perform the following adjustment.

「3. PHASE MATCHING IN ASSEMBLY」 in chapter 1

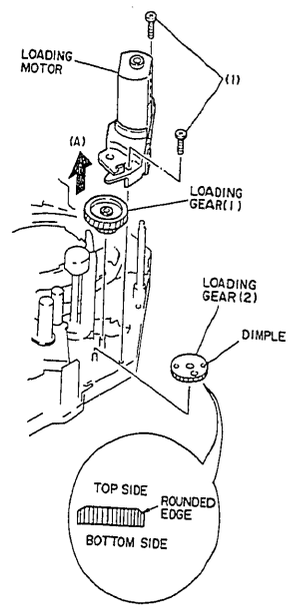


Fig. 2-3

2-4. Tape cover, capstan motor bracket, capstan motor (Figs. 2-4, 2-5)

1) Release tab (1) and pull out the tape cover from the chassis. (See Fig. 2-4)
2) Remove screw (3) holding the capstan motor bracket. (See Fig. 2-5)
3) Remove three screws (2) holding the capstan motor. (See Fig. 2-4)
4) Release three tabs (4) holding the capstan motor and remove the capstan motor in the direction of arrow (A). (See Fig. 2-5)

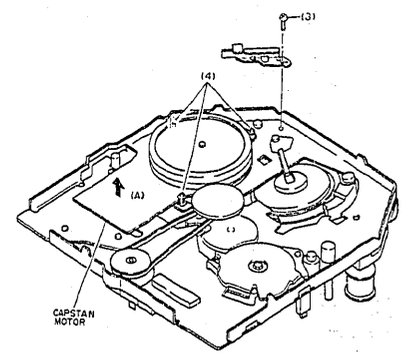


Fig. 2-5

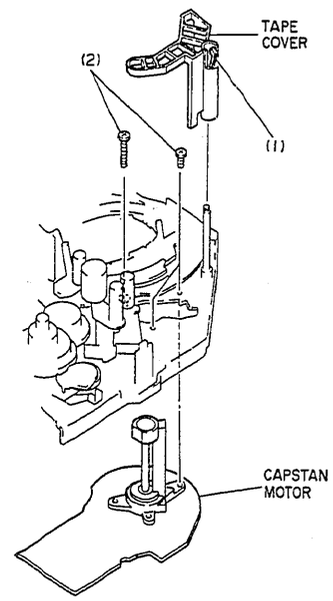


Fig. 2-4

2-5. Pulley gear, center gear, capstan belt (Fig. 2-6)

1) Remove washer (1) holding the pulley gear.
2) Remove washer (2) holding the center gear.
3) Remove the center gear and pulley gear together with the capstan belt.

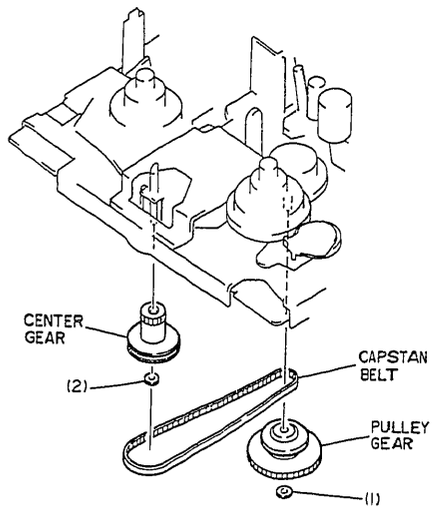


Fig. 2-6

2-6. Trouble sensor circuit board (Fig. 2-7)

1) Remove five screws (1)
2) Slide the supply reel brake in the direction of arrow (A) to release trouble sensor circuit board.

Caution during work
- The following sensors and switches are installed on the trouble sensor circuit board.
- End LED
- Supply and Take-up End Sensors
- Supply and Take-up Reel Sensors
- Safety Tab Switch
- Tape Select Switch
- Hi-8 Tape Switch (For Hi-8 model)
- Cassette Holder Switch
- Mechanism State Switch

Adjustment after reinstalling
- After reinstalling the trouble sensor circuit board, be sure to perform the following adjustment.

「3. PHASE MATCHING IN ASSEMBLY」 in chapter 1

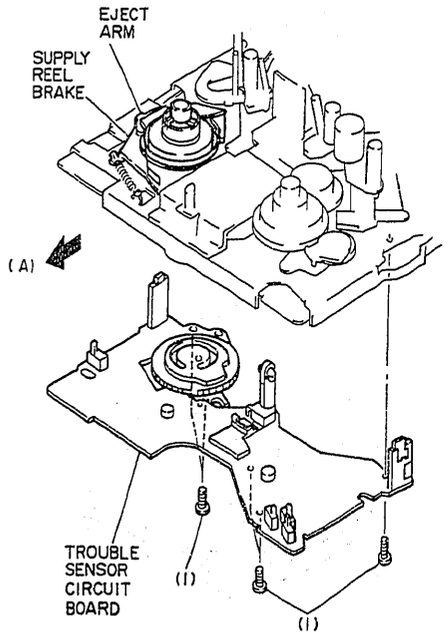


Fig. 2-7

2-7. Pressure roller (fig. 2-8)

1) Remove washer (1).
2) Pull out the pressure roller from the pressure roller shaft.

Caution during work
- Do not remove the spring of the pressure roller.

Caution when reinstalling
- Reinstall the pressure roller so that pin (A) of the pressure roller drive arm is inserted into groove (B) in the pressure roller.

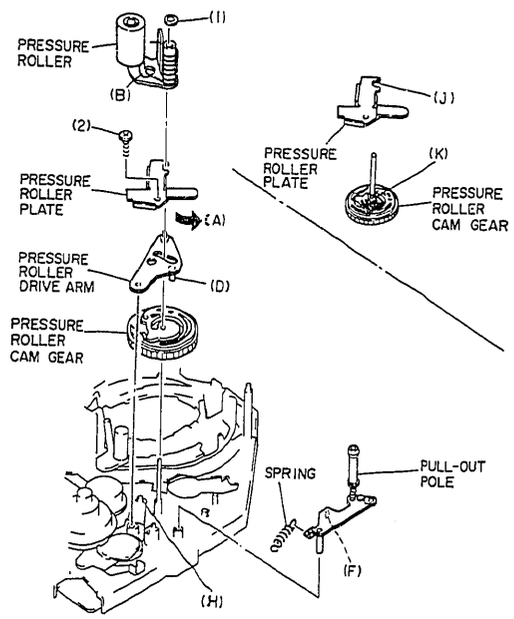


Fig. 2-8

2-8. Pressure roller plate, pull-out pole, pressure roller drive arm, pressure roller cam gear (Figs. 2-8, 2-9)

1) Remove screw (2) holding the puressure roller plate. (See Fig. 2-8)
2) Move the pressure roller plate in the direction of arrow (C) and remove the pressure roller plate. (See Fig. 2-8)
3) Remove the spring. (See Fig. 2-8)
4) Pull out the pull-out pole from the chassis. (See Fig. 2-8)
5) Remove the pressure roller drive arm from the chassis. (See Fig. 2-8)
6) Pull out the pressure roller cam gear from the pressure roller shaft. (See Fig. 2-8)

Cautions when reinstalling
- Reinstall the pressure roller drive arm so that pin (D) of this arm is inserted into groove (E) in the surface of the pressure roller came gear. (See Figs. 2-8, 2-9)
- Reinstall the pull-out pole so that pin (F) of this pole is inserted into groove (G) in the surface of the pressure roller cam gear. (See Figs. 2-8, 2-9)
- Reinstall the pressure roller cam gear so that pin (H) of the cassette holder lock arm is inserted into groove (I) in the back of the pressure roller cam gear. (See Figs. 2-8, 2-9)
- Reinstall the pressur roller plate (J) by inserting it into the groove (K). (See Figs. 2-8)

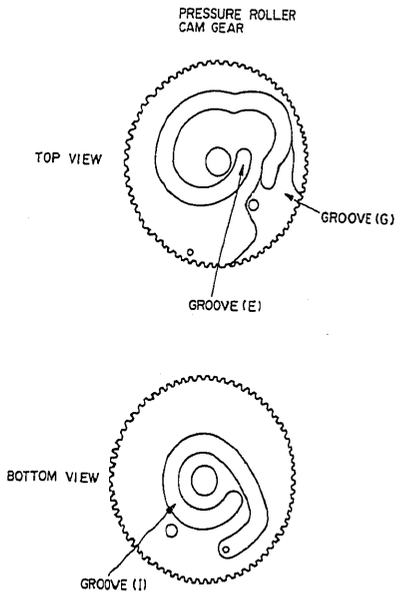


Fig. 2-9

2-9. Take-up reel brake (Fig. 2-10)

1)Remove washer (1).
2)Remove the take-up reel brake from the chassis.

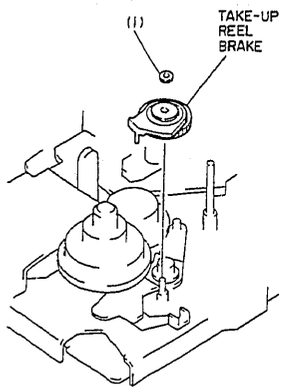


Fig. 2-10

2-10. Supply and take-up guide rollers (Fig. 2-11)

1)Loosen screw (1) holding the supply guide roller.
2)Loosen screw (2) holding the take-up guide roller.
3)Use the special screwdriver (to adjust the guide roller) to turn the top of the supply and take- up guide rollers counterclockwise.

Adjustment after reinstalling
·After reinstalling the supply and take-up guide rollers, be sure to perform the following adjustment.

「3-3.Supply/Take-up Guide Roller Height Adjustment」 in chapter 2

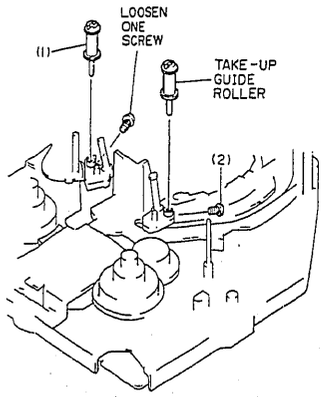


Fig. 2-11

2-11. Impedance roller (Fig. 2-12)

1)Use a flat-bladed screwdriver to turn the top of the impedance roller counterclockwise to remove it.

Adjustment after reinstalling
·After reinstalling the impedance roller, be sure to perform the following adjustment.

「3-2.Pull-out Pole and Impedance Roller Height Check/Adjustment」 in chapter 2

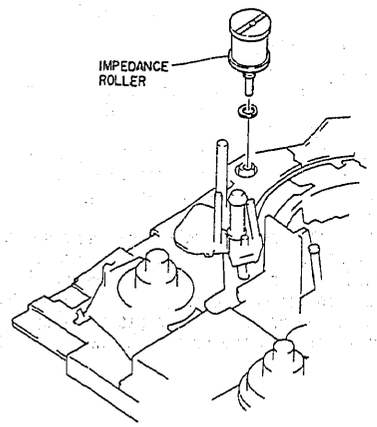


Fig. 2-12

2-12. Chassis plate, take-up reel disk (Fig. 2-13)

1)Remove screw (1) holding the chassis plate.
2)Remove the chassis plate from the chassis.
3)Pull out the take-up reel disk from the take-up reel disk shaft.

Caution when reinstalling
·When reinstalling the chassis plate, make sure the flange covers over the edges of the tension band.

2-13. Eject lock drive arm (Fig. 2-13)

1)Remove the eject lock drive arm from the eject lock arm.

Caution when reinstalling
·Reinstall the eject lock drive arm so that pin (B) of the eject lock arm is inserted into hole (A) in the eject lock drive arm.

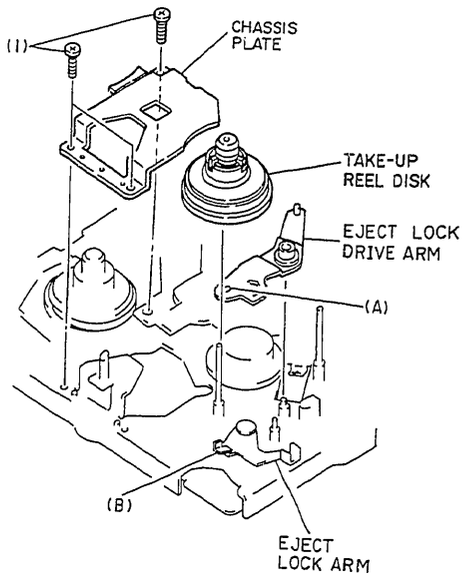


Fig. 2-13

2-14. Tension arm, tension band (Fig. 2-4)

1)Remove the tension spring.
2)Remove screw (1) holding the tension band.
3)Remove washer (2) holding the tension arm.
4)Remove the tension arm and tension band from the chassis.
5)Release two tabs (3) and remove the tension band from the tension arm.

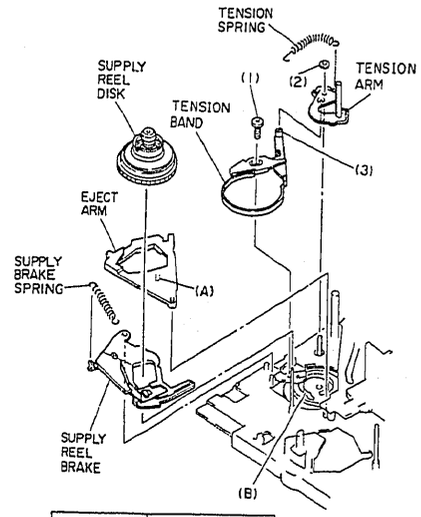
Adjustment after reinstalling
·After reinstalling the tension arm and tension band, be sure to perform the following adjsutment.

「3-1.Tension Pole Postion/Tension Torque Adjustments」 in chapter 2

2-15. Supply reel disk, eject arm, supply reel brake (Fig. 2-14)

1)Pull out the supply reel disk from the supply reel disk shaft.
2)Remove the supply brake spring.
3)Remove the eject arm and supply reel brake from the chassis.

Caution when reinstalling
·Reinstall the eject arm so that pin (A) of the arm is inserted into groove (B) in the mechanism state switch.



TENSION SPRING	12.9mm
SUPPLY BRAKE SPRING	10.8mm

Fig. 2-14

2-16. Reel drive idler (Fig. 2-15)

1) Remove the reel drive idler from the chassis in the direction of arrow (A).

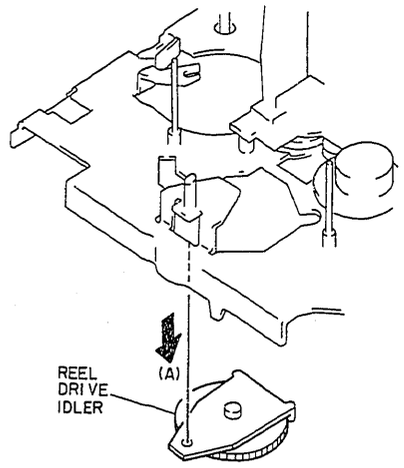


Fig. 2-15

2-17. Cylinder base (Fig. 2-16)

1) Remove three screws (1) holding the cylinder base.

2-18. Guide roller rail, supply and take-up guide roller bases. (Fig. 2-16)

1) Remove two screws (2) holding the guide roller rail.
2) Remove the guide roller rail and guide roller bases from the chassis.
3) Remove the supply guide roller base along the groove in the rail in the direction of arrow (A).
4) Remove the take-up guide roller base along the groove in the rail in the direction of arrow (B).

Adjustment after reinstalling

·After reinstalling the guide roller rail and supply and take-up guide roller bases, be sure to perform the following adjustment.

「3-3. Supply/Take-up Guide Roller Height Adjustment」 in chapter 2

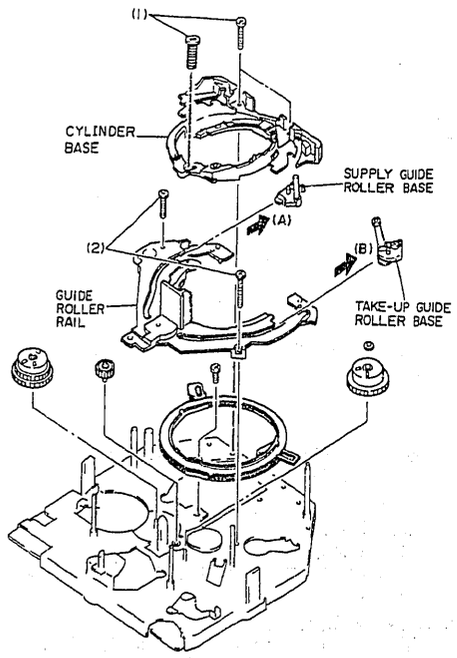


Fig. 2-16

2-19. Loading Relay gears (1)(2) (Fig. 2-17)

1) Remove the loading relay gear (2) from the chassis.
2) Remove washer (1) holding the loading gear (1).
3) Remove the loading relay gear (1) from the chassis.

Adjustment after reinstalling

·After reinstalling the loading relay gears (1) and (2), be sure to perform the following adjustment.

「3. PHASE MATCHING IN ASSEMBLY」 in chapter 1

2-20. Loading ring, loading relay gear (3) (Fig. 2-17)

1) Remove screw (2) holding the loading ring.
2) Remove the loading ring from the chassis.
3) Remove the loading relay gear (3) from the chassis.

Adjustment after reinstalling

·After reinstalling the loading ring and loading relay gear (3), be sure to perform the following adjustment.

「3. PHASE MATCHING IN ASSEMBLY」 in chapter 1

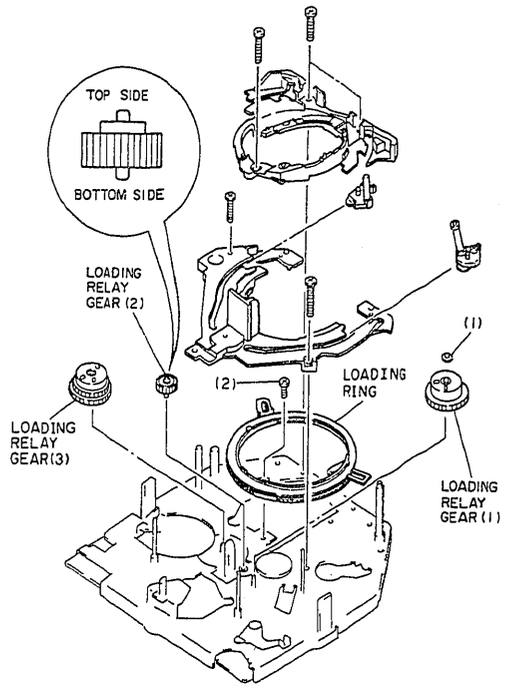


Fig. 2-17

3. PHASE MATCHING IN ASSEMBLY

Cautions
- Here, the phases of all components are aligned in the unloading/stop mode. Be sure to set the camera/recorder to the unloading/stop mode before dismantling the tape transport block.
- Be sure to check and adjust when reinstalling the mechanism state switch, loading motor, gears and loading ring.

3-1. Mechanism State Switch [Mecha. State Sw] (Fig. 3-1)

Procedure of phase matching in assembly

1) Align mark (A) and mark (a) on the mecha. state sw and mecha. state sw case.

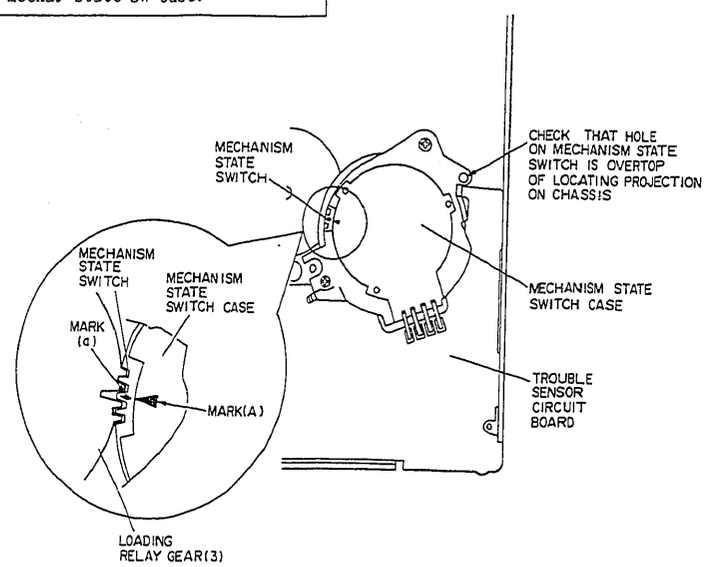


Fig. 3-1

3-2. Loading Gears and Loading Ring (Figs. 3-2, 3-3)

Caution
- Be careful that the phase of the mechanism state switch which was matched in item 3-1 does not drift.

Procedure of phase matching in assembly

1) Align the markings of the loading ring and gears as shown in Fig. 3-2.

Caution: When reinstalling the pressure roller cam gear, set the eject lock arm to the position shown in Fig. 3-3 and check that pin (j) is inserted into groove (J) in the back of the pressure roller cam gear.

Advice: If it is difficult to see marking (D) on the lower loading ring, match the phase by the following procedure.

① Set the upper and lower loading rings to the state shown in Fig. 3-2. (Watch the guide roller fixing section.)
② Move the upper and lower loading rings so that holes (H) overlap each other.
③ If holes (H) overlap each other, the phase of the loading ring is correct.
④ If holes (K) overlap each other, the phase of the loading relay gear (4) is correct.

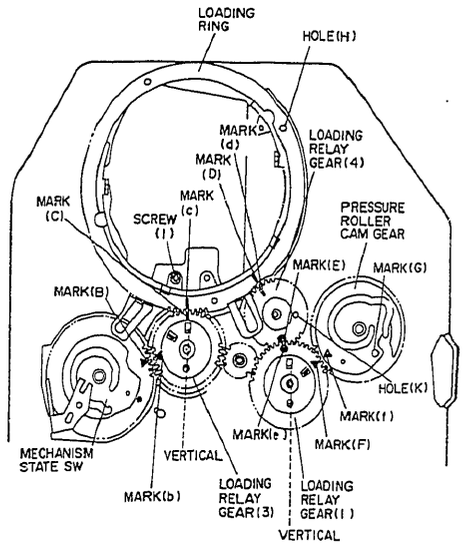


Fig. 3-2

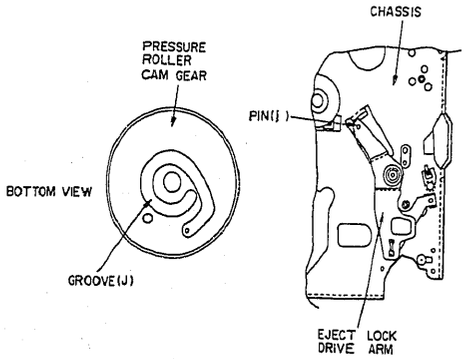


Fig. 3-3

4. PHOTOS OF MECHANISM

·Refer to these when reinstalling and perform phase matching in assembly.

4-1. Top View of Mechanism

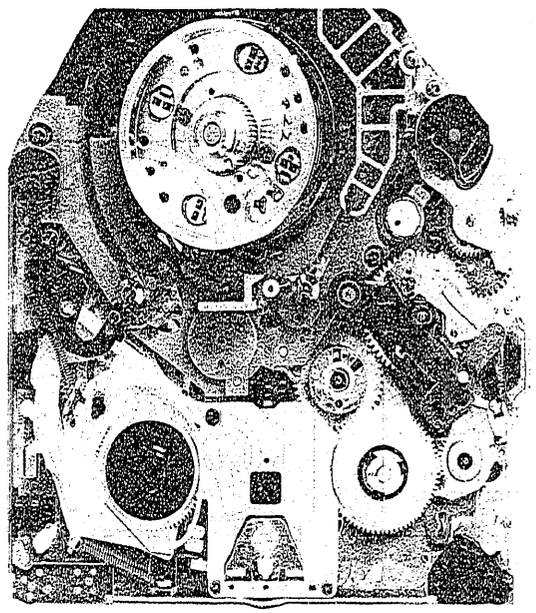


Fig. 4-1

4-2. Bottom View of Mechanism

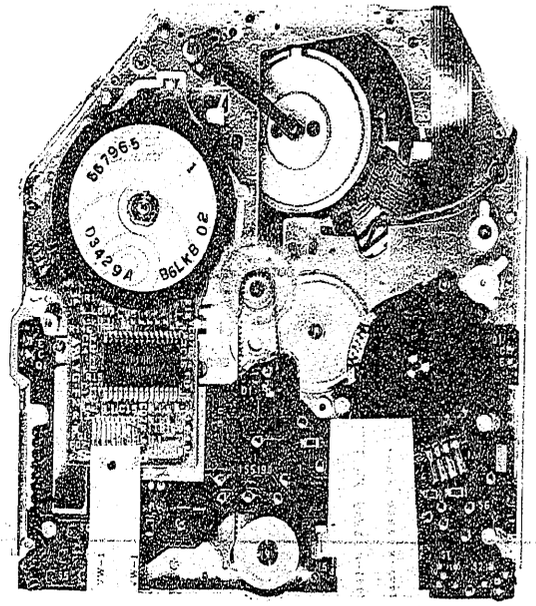
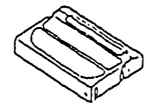


Fig. 4-2

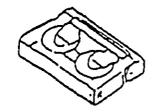
CHAPTER 2

JIGS AND TAPES FOR ADJUSTMENT

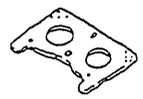
1. ALIGNMENT TAPE
   COLOR BAR/400Hz
   NTSC (20HSC-2): No. 7099231
   PAL (20HSC-3): No. 7099232



2. CASSETTE TORQUE METER
   NTSC(SRK-8T-132): No. 7099235
   NTSC(SRK-8T-112): No. 7099385
   PAL (SRK-8T-232): No. 7099236
   PAL (SRK-8T-212): No. 7099402

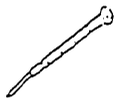


3. MASTER PLANE
   No. 7099237



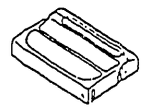
4. REEL DISK HEIGHT JIG
   No. 7099238

5. SPECIAL DRIVER
   No. 7099239



6. ATF-R JIG (SW3:ON)
   No. 7099461

★7. BLANK TAPE
   NTSC: P6-120
   PAL : P5-90

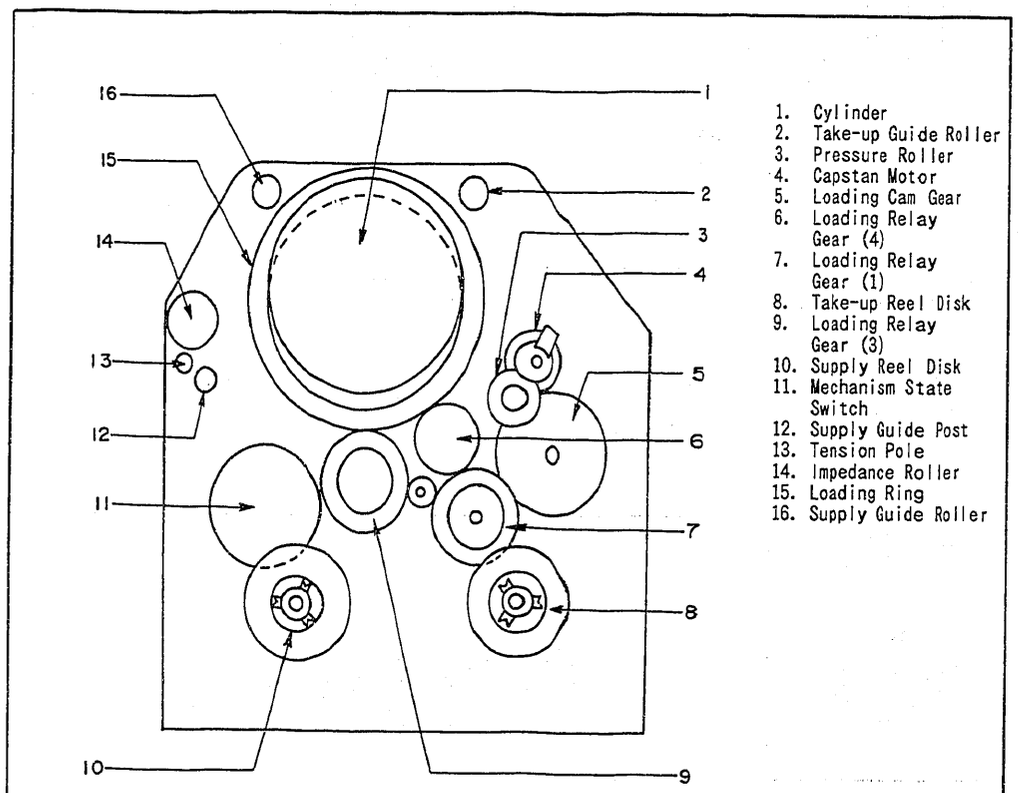


NOTE
1: Always set SW3 on the ATF-R jig to ON.
2: The ATF jig (No. 7099386) can also be used in place of ATF-R jig to adjust this model.

MARKS
※ : New Jigs and tools
★ : Goods on the Market
◆ : Optional Accessory
◎ : Accessory

MECHANISM ADJUSTMENT

1. MAJOR MECHANICAL COMPONENTS



1. Cylinder
2. Take-up Guide Roller
3. Pressure Roller
4. Capstan Motor
5. Loading Cam Gear
6. Loading Relay Gear (4)
7. Loading Relay Gear (1)
8. Take-up Reel Disk
9. Loading Relay Gear (3)
10. Supply Reel Disk
11. Mechanism State Switch
12. Supply Guide Post
13. Tension Pole
14. Impedance Roller
15. Loading Ring
16. Supply Guide Roller

Fig. 1-1 Tape Transport Mechanism (Top View)

2. BEFORE STARTING ADJUSTMENT

1) Be sure to set the camera/recorder to the unloading/stop mode when dismantling the tape transport block.
2) Do not re-use washers once they have been removed.
3) Dismantle the mechanism, referring to "DISASSEMBLY" so the mechanism adjustment can be done.
4) With this camera/recorder, mechanical adjustments (tape transport system check/adjustment) can be done with the unassembled VTR block (without connecting the camera block).
5) To set the camera/recorder to the playback mode without loading a cassette, shut off the light striking the end LEDs in the chassis and press the playback button. (Shut off the light striking the end LEDs in the eject state.)

3. TAPE TRANSPORT SYSTEM CHECK/ADJUSTMENT

The tape transport system is a generic term for the path from the supply reel disk to the take-up reel disk via the cylinder. The tape transport components, especially the components which come into direct contact with the tape, should be kept clean without damage, dust or oil, etc. adhering to the contact surfaces. The tape transport system is adjusted before shipment from the factory, so perform adjustments only when components of the transport system are replaced or adjustments of the transport system have drifted.

3-1. Tension Pole Position/Tension Torque Adjustments (Fig. 3-1)

Caution
- Be sure to perform these adjustments after reinstalling the tension arm, tension band and tension spring.

Test equipment/jigs	Test equipment/jigs connection points	State of VCR	Adjustment point
		• Shut off the light striking the end LEDs and set to the playback mode without loading a cassette	• Tension band holder
• Cassette torque meter (SRK-8T-112/212)	• Load a cassette torque meter	• Set to the playback mode.	• Tension spring

Adjustment procedure

◆Tension pole position adjustment (Fig. 3-1)
1) Hook the tension spring to position (B) of the tension supring holder.
2) Loosen screw (D) holding tension band holder (E).
3) Adjust the position of tension band holder (E) so the relationship between the hole in the tension arm and guide roller rail is as shown in Fig. 3-1.
4) Tighten screw (D).
5) Repeat playback and stop several times and check that the specification in step 3) is satisfied. If it is not satisfied, re-adjust the tension pole position.

◆Tension torque adjustment (Fig. 3-1)
1) Hook the tension spring to position (B) of the supring holder.
2) Set the tension torque on the supply side to 4.5 - 5.5 g-cm.
If it is more than 5.6 g-cm: Move the tension spring to position (A) of the spring holder.
If it is less than 4.4 g-cm: Move the tension spring to position (C) of the spring holder.

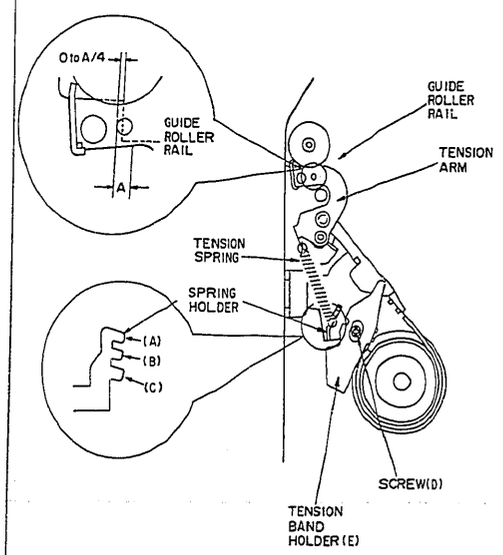


Fig. 3-1

3-2. Pull-out Pole and Impedance Roller Height Check/Adjustment (Figs. 3-2, 3-3)

Caution

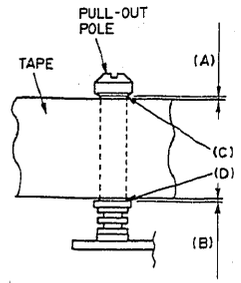
1)Be sure to check this item after reinstalling the pull-out arm and impedance roller. Basically, the pull-out pole height should not be adjusted. Adjust the pull-out height only if it is abnormal.

Test equipment/jigs	Test equipment/jigs connection points	State of VCR	Adjustment point
· Blank tape · Special driver		· Load a blank tape and set to the playback mode.	· Top of pull-out pole

●Checking/adjustment procedure

◆Pull-out Pole

1)Check that the tape is running at the center of the pull-out arm. If it is not, adjust the height of the arm.
2)Set to the reverse search mode.
3)Check that the tape is running between (C) and (D) and also no curling or creasing occurs.
4)If step 3) cannot be confirmed, fine adjust the height of the pull-out arm.



(A) = (B)

Fig. 3-2

◆Impedance Roller

1)Check that there is no curling or creasing of the tape around the impedance roller. If curling or creasing occurs, check the installation of the impedance roller.

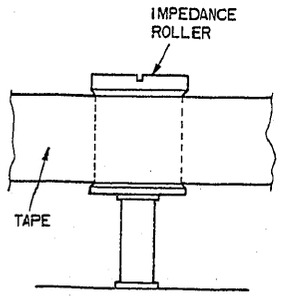


Fig. 3-3

3-3. Supply/Take-up Guide Roller Height Adjustment (Figs. 3-4, 3-5)

Caution

·Be sure to check this item after reinstalling the supply guide roller and take-up guide roller. Basically, the height of the supply/take-up guide rollers should not be adjusted. Adjust these heights only if they are abnormal.

Test equipment/jigs	Test equipment/jigs connection points	State of VCR	Adjustment point
· Alignment tape · Oscilloscope · ATF-R jig · Special driver	· Test Plug on Main board · TP1(SW25/30) on ATF-R jig · TP2(GND) on ATF-R jig · TP3(FM OUT) on ATF-R jig	· Connect the ATF-R jig to test plug. · ATF-R jig (SW1: OFF, SW3: ON, RT1: mechanical center)	· Top of guide rollers

●Adjustment procedure

Caution: Before performing this adjustment, refer to Fig. 6-1 and modify the ATF-R jig. Connect the ATF-R jig before suppling power.

1)Load an alignment tape that has been completely rewound. Press the PLAY button and hold it, then set the POWER switch to VIDEO position.
2)Connect an oscilloscope to TP3 on the ATF-R jig.
3)Synchronize the oscilloscope with TP1 (SW25/30) on the ATF-R jig.
4)Set the osilloscope to (+) slope.

◆Supply Guide Roller (Fig. 3-4)

5)Press SW2 on the ATF-R jig and hold it, then perform the following steps.
6)Adjust the height of the supply guide roller so the waveform is flat.
7)Adjust the voltage level control of the oscilloscope so that portion (A) of the waveform is set to 4 graduations.
8)Set SW1 on the ATF-R jig to ON.
9)Turn RT1 on the ATF-R jig counterclockwise so that portion (A) of the waveform is set to 3 graduation.
10)Adjust the height of the supply guide roller so minimum amplitude of the waveform is set to NTSC:2.3±0.3/PAL:2.5±0.3 graduations.

◆Take-up Guide Roller (Fig. 3-5)

11)Set the oscilloscope to (-) slope.
12)Adjust the voltage level control of the oscilloscope so that portion (B) of the waveform is set to 4 graduarions.
13)Turn RT1 on the ATF-R jig counterclockwise so that portion (B) of the waveform is set to 3 graduations.
14)Adjust the height of the take-up guide roller so the minimum amplitude of the waveform is set to NTSC:2.5±0.3/PAL:2.3±0.3 graduations.

Caution: After adjustment is completed, be sure to reverse the modification to ATF-R jig.

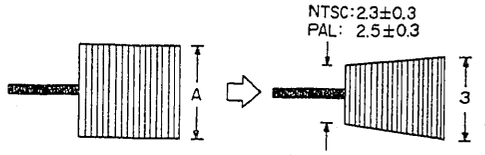


Fig. 3-4

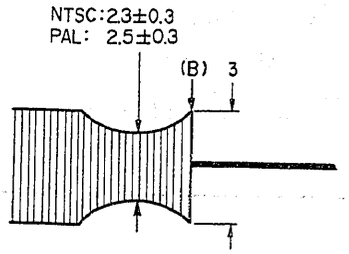


Fig. 3-5

4. ADJUSTMENT AFTER REPLACING THE CYLINDER (Figs. 4-1, 4-2)

When the cylinder is replaced, the height relative to the guide roller drifts, therefore the tape transport system and servo circuit should be adjusted. Check and adjust in the following order.

Test equipment/jigs	Test equipment/jigs connection points	State of VCR	Adjustment point
· Alignment tape · Oscilloscope · ATF-R jig · Special driver	· Test Plug on Main board · TP1(SW25/30) on ATF-R jig · TP2(GND) on ATF-R jig · TP3(FM OUT) on ATF-R jig	· Connect the ATF-R jig to test plug. · ATF-R jig (SW1: OFF, SW3: ON, RT1: mechanical center)	· Top of guide rollers

●Adjustment procedure

Caution: Before performing this adjustment, refer to Fig. 6-1 and modify the ATF-R jig.

1) Load an alignment tape that has been completely rewound. Press the PLAY button and hold it, then set the POWER switch to the VIDEO position.
2) Connect an oscilloscope to TP3 on the ATF-R jig.
3) Syncronise the oscilloscope with TP1(SW25/30) on the ATF-R jig.
4) Set the oscilloscope to (+) slope.
5) Press SW2 on the ATF-R jig and hold it, then perform the following steps.
6) Adjust the voltage level control of the oscilloscope so that portion (A) of the waveform is set to 4 graduations.
7) Set SW1 on the ATF-R jig to ON.
8) Turn RT1 on the ATF-R jig counterclockwise so that portion (A) of the waveform is set to 3 graduations.
9) Adjust the height of the supply guide roller so the minimum amplitude of the waveform is set to NTSC:2.3±0.3/PAL:2.5±0.3 graduations. (See Fig. 4-1)
10) If this cannot be confirmed, adjust the height of the supply guide roller, referring to "3-3. Supply/Take-up Guide Roller Height Adjustment".
11) Set the osilloscope to (-) slope.
12) Turn RT1 on the ATF-R jig so that portion (B) of the waveform is set to 3 graduations.
13) Check that the minimum amplitude of the waveform is set to NTSC:2.3±0.3/PAL:2.5±0.3 graduations. (See Fig.4-2)
If this cannot be confirmed, adjust the height of the take-up guide roller, referring to "3-3. Supply/Take-up Guide Roller Height Adjustment".
14) Perform the following electrical adjustments.
·Head switching point adjustment
·Record luminance/chroma level adjustment

Caution: After adjustment is complete, be sure to reverse the modification to ATF-R jig.

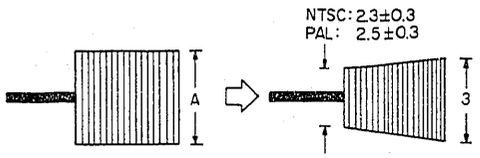


Fig. 4-1

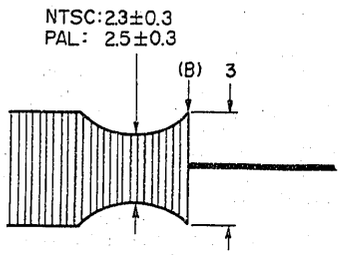


Fig. 4-2

5. CHECKING THE TORQUE

There are two types of cassette torque meter.
Choose the applicable one for the measurement to be performed.

Item	VCR mode	Measured reel disk	Torque value	Torque cassette used
Take-up torque	Playback	Take-up	7-13 g-cm	SRK-8T-212 SRK-8T-232
Rewind torque	Reverse search	Supply	25-37 g-cm	SRK-8T-232
Take-up brake torque	Reverse search to stop	Take-up	10 g-cm ro more	SRK-8T-212 SRK-8T-232
Slack removal torque	Unloading	Supply	25-37 g-cm	SRK-8T-232

6. MODIFICATION TO ATF-R JIG (Fig. 6-1)

Caution: The ATF-R jig must be modified for the following adjustments. After completing these, be sure to reverse the modification.
- 3-3. Supply/Take-up Guide Roller Height Adjustment
- 4. ADJUSTMENT AFTER REPLACING THE CYLINDER

●Procedure

1) Short terminal (A) of the resistor and TP2 (GND) on the ATF-R jig.

Note: This modification makes SW2 on the ATF-R jig a PCM area observation switch.

Caution: Use a shorting clip, etc. to short the parts; this can be removed easily after adjustment is completed.
A modification is also necessary in the same way when the ATF jig is used.

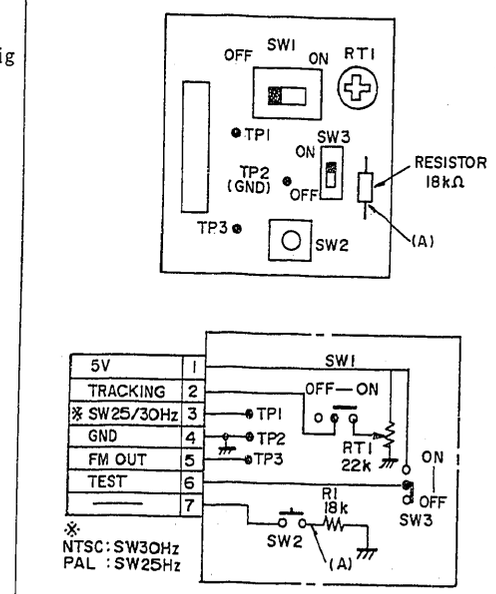


Fig. 6-1

CHAPTER 3

MAINTENANCE/INSPECTION PROCEDURE

1. Required Maintenance

The recording density of a VCR is much higher than that of an audio tape recorder. VCR components must be very precise to ensure compatible with other VCRs. If any of these components are worn or dirty, the symptoms will be the same as if the part is defective.
To ensure a good picture, periodic inspection and maintenance, including replacement of worn-out parts and lubrications, is necessary.

2. Scheduled Maintenance

Schedules for maintenance and inspection are not fixed because they vary greatly according to the way in which the customer uses the VCR, and the environment in which the VCR is used. But, in general home use, a good picture will be maintained if the inspection and maintenance is done every 500 hours. Table 1 shows the relation between time used per day and inspection period.

Table 1

Average hours used per day	When inspection is necessary: About 6 months	About 9 months	About 18 months
One hour			
Two hours			
Three hours			

3. Check before starting Repairs

The faults occurring in the playback picture as shown in Table 2 can be remedied by cleaning and oiling. Check the need for lubrication and the conditions of cleanliness in the unit.
Check with the customer to find out how often the unit is used. If from that you determine that the unit is ready for inspection and maintenance, check the parts shown in Table 2.

Table 2

Phenomenon	Inspection Location
Poor S/N, no color	Dirt on video head or worn video head
Tape does not run or tape is slack	Dirt on pressure roller, cylinder or in tape transport system
Vertical jitter	Dirt on video head or in tape transport system
Low volume or sound distorted	Dirt on video head or worn video head

4. Tools Needed for Inspection and Maintenance

(1) Head cleaning kit
(2) VCR oil and grease (Table 3)
(3) Alcohol
(4) Gauze
(5) Cleaning tape [Maxell 8M-CL MCA (dry type)]

Table 3 Locations for Greasing and Oiling

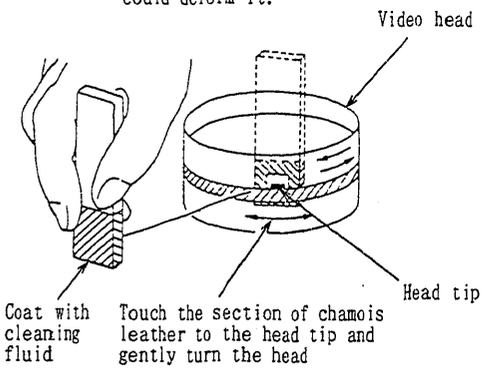
Name	Oil or Greasing Location
Sonic Slidas Oil (#1600)	Oil low-speed rotating sections
Froil (G31-SA)	Lubricate metal or molded section under light load
Molicoat (PG-641)	Lubricate metal or molded sections under light load
Lock paint	Fix adjustment screws and nuts.

5. Maintenance Procedures

5-1 Cleaning

(1) Cleaning video head
First use a cleaning tape. Be sure to use the specified cleaning tape and read its instruction sheet carefully before using it. If dirt on head is too stubborn to remove by tape, use the cleaning kit. Moisten the cleaning stick with cleaning fluid at the point indicated.
Touch the stick to the head tip and gently turn the head (rotating cylinder) to the right and left. (Do not move the stick vertically and make sure that only the chamois leather on the stick comes into contact with the head. Otherwise, the head may be damaged.) Thoroughly dry the head. Then test run a tape.
If cleaning fluid remains on the video head, the tape may be damaged when it comes into contact with the head surface.

(2) Cleaning the tape transport system and drive system, etc.
Wipe with gauze moistened with alcohol.
Notes: 1) The tape transport system is the system which comes into contact with the running tape. The drive system consists of those parts which run the tape.
2) Make sure that during cleaning you do not touch the tape transport system with the tip of a screwdriver and that no force is applied to the system that could deform it.



5-2 Lubrication

(1) Guide lines for lubricating with oil
Use the oiler to apply one or two drop of Sonic Slidas oil. Make sure not to use too mach oil because it may spill over or leak out coming into contact with rotating parts and causing slippage or other problems. If too much oil is applied, wipe clean with alchohol.

(2) Periodic oil lubrication
Lubricate the specified locations only when replacing components. Refer to the exploded views for the lubricating locations.

5-3 Greasing

(1) Greasing guidelines
Apply grease Froil or Molicoat, with a stick or brush. DO not use excess grease. It may come into contact with the tape transport or drive system. Wipe any excess and clean with gauze moistend with alcohol.

(2) Periodic greasing
Grease the specified locations only when replacing components. Refer to the exploded views for the greasing locations.

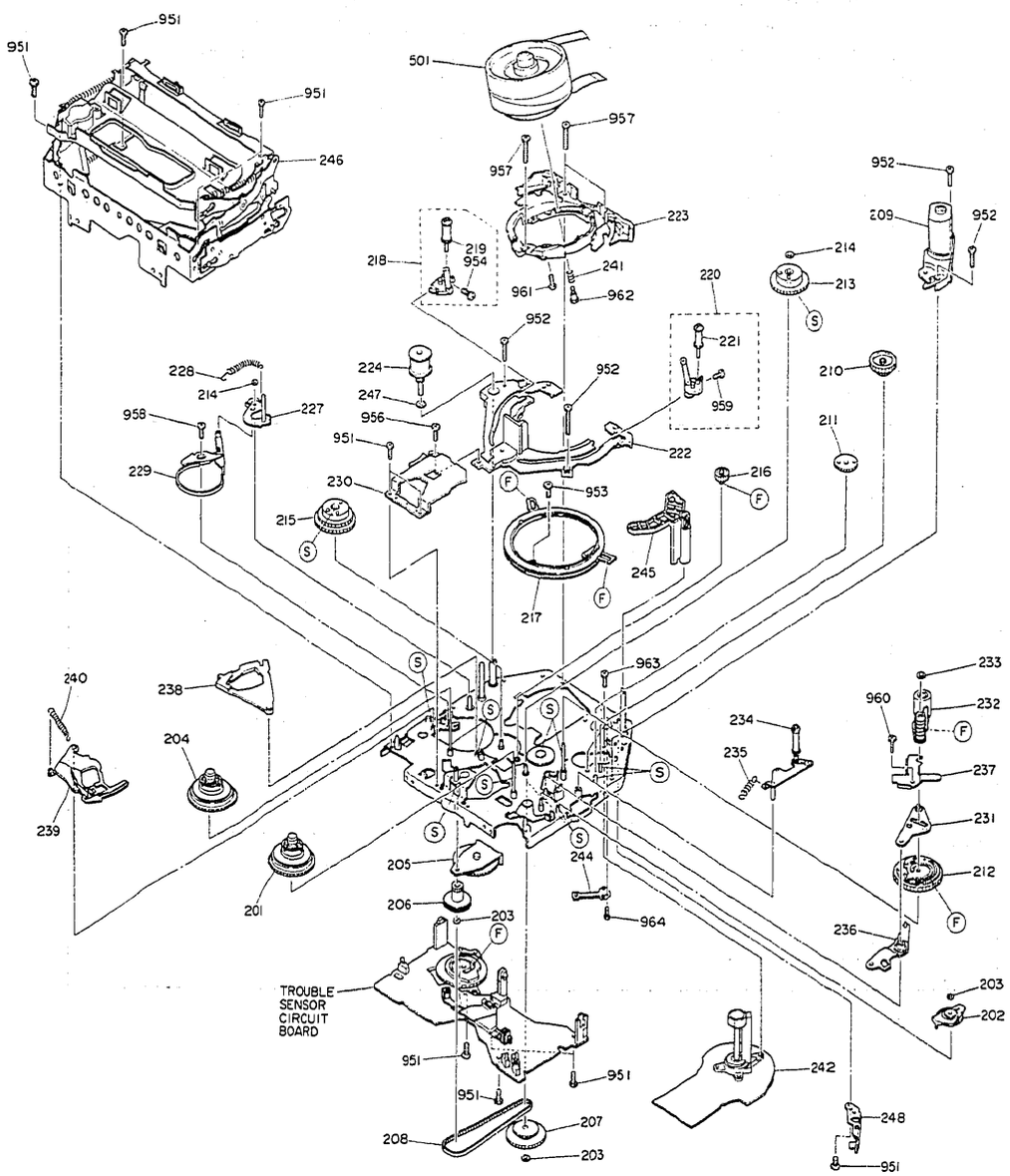
Table 4 Parts to be Maintained/Inspected and Maintenance/Inspection Schedules

Caution: The following table does not apply to all units. The maintenance/inspection schedules depend on how the unit is used and the environment in which it is used.

Component \ Hours	500	1000	1500	2000	2500	3000
Video heads (cylinder assembly)	C	C/R	C	C/R	C	C/R
Supply guide roller	C	C	C	C	C	C
Supply guide pole	C	C	C	C	C	C
Take-up guide roller	C	C	C	C	C	C
Pull-out pole	C	C	C	C	C	C
Tension pole	C	C	C	C	C	C
Tension band		R		R		R
Supply reel disk	C	C	C	C/R	C	C
Take-up reel disk	C	C	C	C/R	C	C
Pressure roller	C	C	C	C/R	C	C
Impedance roller	C	C	C	C	C	C
Capstan belt				R		
Reel drive idler				R		
Capstan shaft (capstan motor)	C	C	C	C/R	C	C
Loading motor				R		

C : Cleaning
R : Parts replacing

EXPLODED VIEW



E4-1

TH MECHANISM

HITACHI

TH MECHANISM TK No. 6406E TOKAI Consumer Electronics Division

 Printed in Japan (HEC)